XAV-C1

SERVICE MANUAL

Ver. 1.0 2006.10

US Model
Canadian Model
AEP Model
E Model
Australian Model
Chinese Model

- US and Canadian models include the connection box (XA-123).

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DVD Section	Model Name Using Similar Mechanism	NEW
	DVD Mechanism Type	MDAU51
	Optical Pick-up Name	HPD-60
OPEN/CLOSE Section	Model Name Using Similar Mechanism	NEW
	Open/Close Mechanism Type	DB-M03

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION
22 watts per channel minimum continuous average power into 4 ohms, 4 channels driven from 20 Hz to 20 kHz with no more than 5 % total harmonic distortion.

CEA2006 Standard
Power Output: 17 Watts RMS × 4 at
4 Ohms < 1% THD+N
SN Ratio: 82 dBA
(reference: 1 Watt into 4 Ohms)

System

Laser Semiconductor laser
Signal format system
NTSC (US, CND)
PAL (AEP, RU, E, AUS, CH)

Monitor section

Display type Wide LCD color monitor
Size 7 in.
System TFT active matrix
Number of pixel
336,960 pixels

DVD/CD Player section

Signal-to-noise ratio
100 dB
Frequency response
10 – 20,000 Hz
Wow and flutter
Below measurable limit
Harmonic distortion (DVD)
0.01%

Tuner section

FM
Tuning range
87.5 - 108MHz (AEP, RU, E, AUS, CH)
87.5 - 107.9 MHz (US, CND)
Intermediate frequency
10.7 MHz / 550 kHz
Usable sensitivity
9 dBf
Frequency response
30 - 15,000 Hz
Selectivity 75 dB (400 kHz)
S/N ratio 64 dB (stereo)
69 dB (mono)
Harmonic distortion at 1 kHz
0.5% (stereo)
0.4% (mono)
Separation 35 dB at 1 kHz

– Continued on next page –

AV CENTER

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Sony Corporation
eVehicle Division
Published by Sony Techno Create Corporation

SONY

AM

Tuning range
531 - 1,602 kHz (AEP, RU, E, AUS, CH)
530 - 1,710 kHz (US, CND)

Intermediate frequency
10.8 MHz / 450 kHz

Usable sensitivity
30 µV

Amplifier section

Outputs Speaker outputs (sure seal connectors)

Speaker impedance
4 - 8 ohms

Maximum power output
50 W × 4 (into 4 ohms, at 1 kHz)

General

Power requirements
12 V DC, from car battery (negative ground)

Consumption current rating
Max. 10 A

Inputs Power supply (1)
AUX (3)

Outputs Front PRE out (1)
Rear PRE out (1)
Subwoofer (mono) (2)
Power aerial relay control lead (1)
Power amplifier control lead (1)
Rear Monitor OUT (1)

Tone controls Bass ±10 dB at 100 Hz
Treble ±10 dB at 10 kHz

Dimensions With monitor closed
Approx. 178 × 50 × 185 mm (W × H× D)

Mass Approx. 1.7 kg

Supplied accessories
Remote commander RM-X706 (1) (incl. 1 lithium battery)
Parts for installation and connections (1 set)
Operating Instructions (1 set)
Connection box for XM tuner (1) (US, CND)

Design and specifications are subject to change without notice.

- Abbreviation
  AUS : Australian model
  CH : Chinese model
  CND : Canadian model
  RU : Russian model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COM- POSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

CAUTION
The use of optical instruments with this product will increase eye hazard.

As the laser beam used in this CD / DVD player is harmful to eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

This label is located on the bottom of the chassis.
This product is classified as a CLASS 1 LASER PRODUCT.

This label is located on the bottom of the chassis.

– US, Canadian models –

This label is located on the top exterior.

关于安全相关零部件的警告

原理图和零件清单中标有⚠记号的零部件、或带有⚠记号的虚线所表示的零部件，对于安全操作至关重要。更换时，必须依据本手册或索尼公司追加发行的手册中列明的零件号，使用索尼公司的零件进行。

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SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

Never look into the laser diode emission from right above when checking it for adjustment. It is feared that you will lose your sight.

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size)

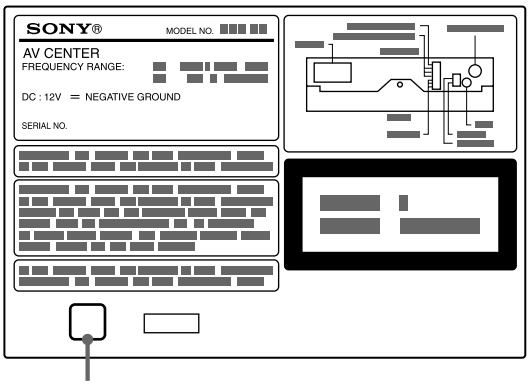
: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40 ˚C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350 ˚C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscou-s (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

REGION CODE

This system is used to protect software copyrights.
The region code is located on the bottom of the unit, and only DVDs labeled with an identical region code can be played on this unit.



Region code

DVDs labeled (ALL) can be also played on this unit.
If you try to play any other DVD, the message “Can not play” will appear on the monitor screen. Depending on the DVD, no region code may be labeled even though playing the DVD is prohibited by area restrictions.

Label indication		Destination
Signal format system	Region code	
NTSC	1	US, Canadian models
PAL	2	AEP model
PAL	3	E, Australian models
PAL	5	Russian model
PAL	6	Chinese model

Playable discs

Format of discs		
DVD VIDEO	DVD VIDEO	DVD VIDEO
DVD-R*	DVD R	
DVD-RW*	DVD RW	
DVD+R*	DVD+R	
DVD+RW*	DVD+ReWritable	
Video CD	COMPACT disc DIGITAL VIDEO	VIDEO CD
Audio CD	COMPACT disc DIGITAL AUDIO	COMPACT disc DIGITAL AUDIO TEXT
CD-R*	COMPACT disc DIGITAL AUDIO Recordable	COMPACT disc Recordable
CD-RW*	COMPACT disc DIGITAL AUDIO ReWritable	COMPACT disc ReWritable

* Discs that are not finalized cannot be played.
“DVD VIDEO”, “DVD-R”, “DVD-RW”, “DVD+R”, and “DVD+RW” are trademarks.

DVD

A DVD contains both audio and visual data. A 12-cm disc can hold 7 times the amount of data contained in a CD-ROM, which equals to 4 consecutive hours of playing time (8 hours for double-sided discs). DVDs are divided into 4 types: single sided single layer, single sided double layer, double sided single layer, and double sided double layer.

Video CD (VCD)

A Video CD can contain both audio and visual data on a disc with the same size as a regular Audio CD. The playing time is 74 minutes for a standard 12-cm CD.

Audio CD

An Audio CD containing audio data. The playing time is 74 minutes for a standard 12-cm CD.

CD-Recordable (CD-R)

With a CD-R, you can edit audio data. You can write information on a CD-R only once.

CD-Rewritable (CD-RW)

With a CD-RW, you can edit audio data. You can write information on a CD-RW again and again.

CD-Extra

A CD-Extra has two sections (sessions) for audio and data respectively. You can only play the section of audio on this unit.

Notes

- You can play DVD-Rs / DVD-RWs, DVD+Rs / DVD+RWs and CD-Rs / CD-RWs designed for audio with this unit. However, depending on the recorded conditions, you cannot play some discs.
- You **cannot play** CD-Rs / CD-RWs, DVD-Rs / DVD-RWs or DVD+Rs / DVD+RWs that are **not finalized**.
- Discs created in Packet Write format cannot be played.
- The discs listed below cannot be played on this unit:
  – 8-cm discs
  – CD-ROM (the data other than the MP3 or JPEG files)
  – CD-G
  – Photo-CD
  – VSD (Video single disc)
  – DVD-ROM (the data other than the MP3 or JPEG files)
  – DVD-RAM
  – DVD-Audio
  – CPRM
  – Active-Audio (Data)
  – CD-Extra (Data)
  – Mixed CD
  – SVCD (Super Video CD)
  – CDV
  – CD-F
  – SACD (Super Audio CD)

NOTE WHEN REPLACING THE MAIN BOARD

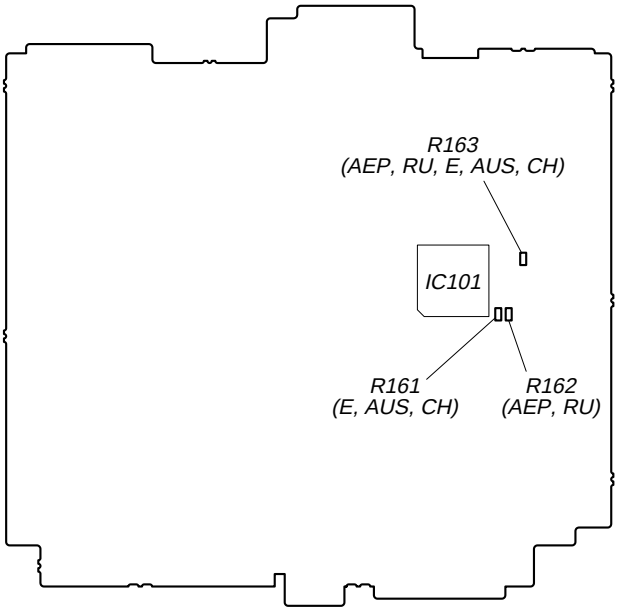
1. Destination Setting

The MAIN board used in this set has different mounted parts according to the destination, but the mounted MAIN board supplied (9-885-085-49) is exclusive for the US and Canadian models only. Accordingly, when replacing the MAIN board for AEP, Russian, E, Australian, and Chinese models, add or replace the parts following the table shown below.

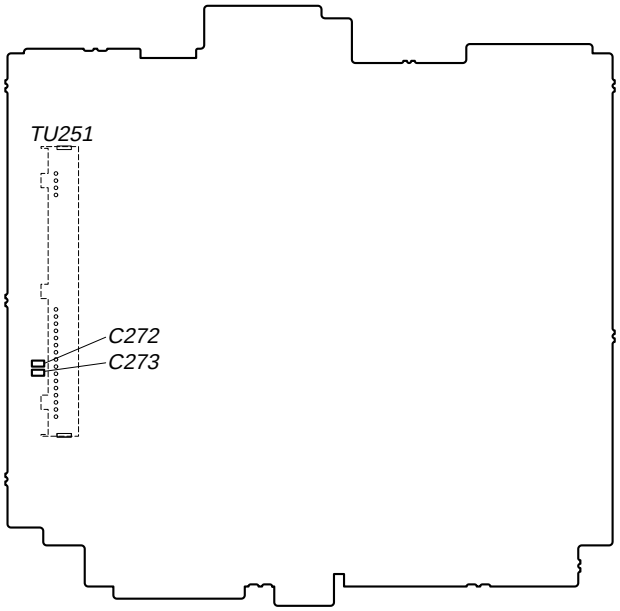
Destination	C272, C273 (Replacement)	R161 (Addition)	R162 (Addition)	R163 (Addition)
AEP, Russian model	9-885-087-71 CK1H153KPUBNG 0.015uF	No mount	9-885-087-70 SHORT CHIP 0	9-885-087-70 SHORT CHIP 0
E, Australian, Chinese models	9-885-087-71 CK1H153KPUBNG 0.015uF	9-885-087-70 SHORT CHIP 0	No mount	9-885-087-70 SHORT CHIP 0

Parts Location:

– MAIN BOARD (Component Side) –



– MAIN BOARD (Conductor Side) –



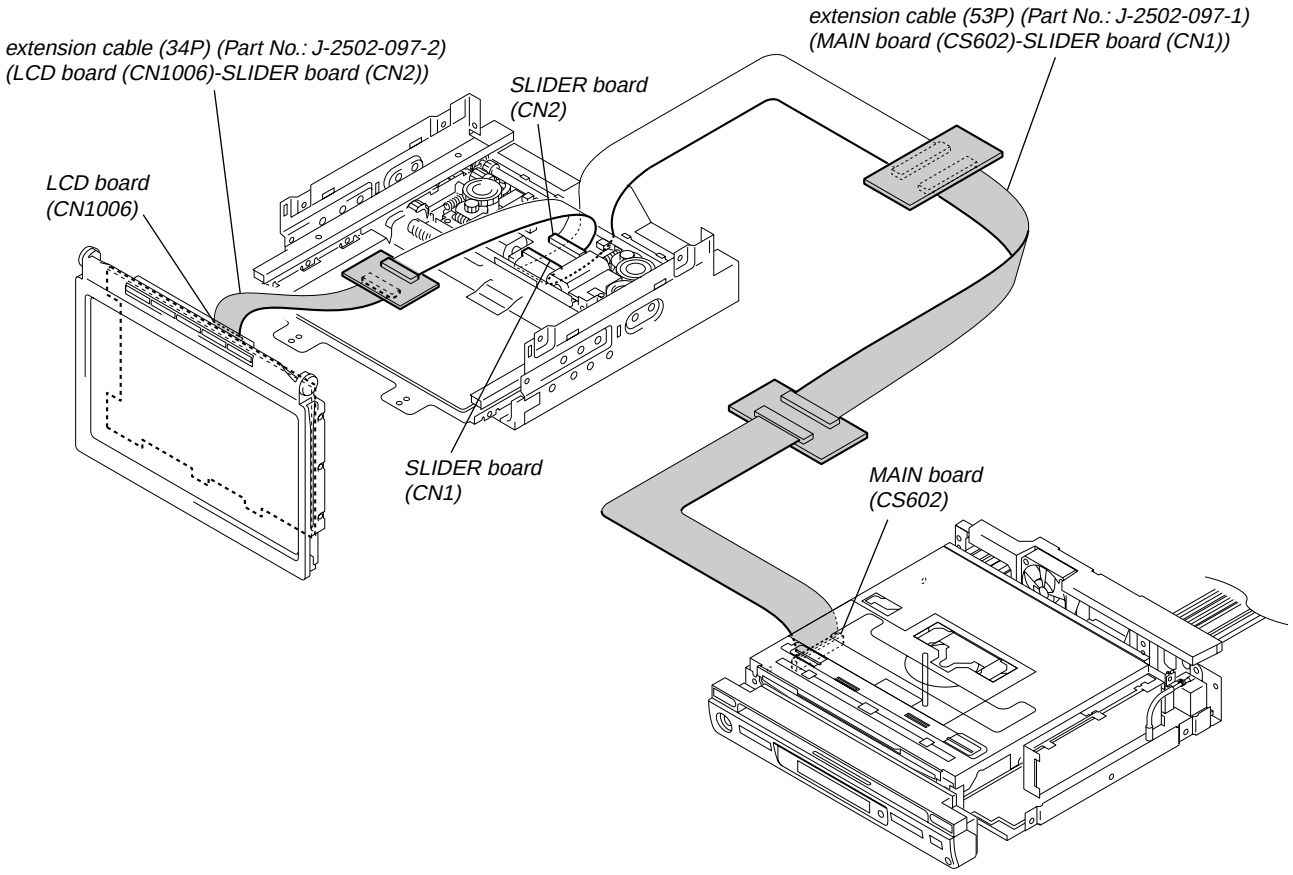
- Abbreviation
  AUS : Australian model
  CH : Chinese model
  RU : Russian model

2. Other Attention

If the mounted MAIN board was replaced, be sure refer to Technical News published separately.

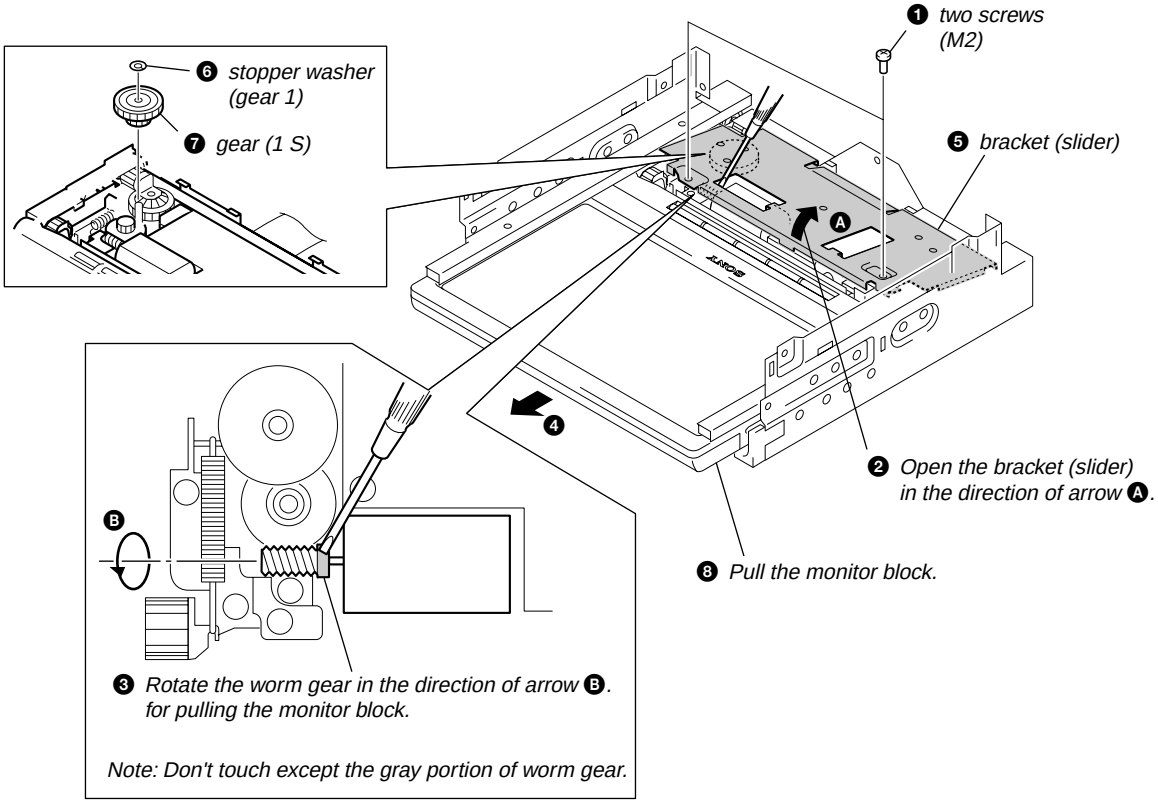
JIG ON REPAIRING

- When repairing this set, etc., connect the extension cable as the figure shown below.



HOW TO PULL OUT MONITOR BLOCK IN CASE ELECTRICITY DOES NOT CIRCULATE

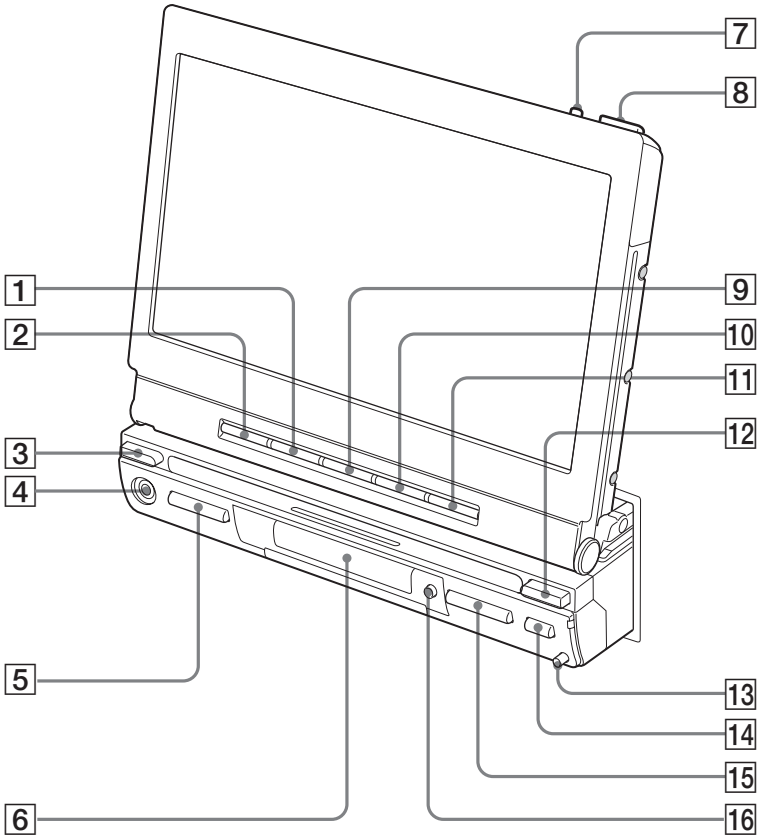
- When monitor block does not open by fault, pull out monitor block in the following procedures.



Location of Controls

Main unit

Monitor Open



Refer to the pages listed for details.

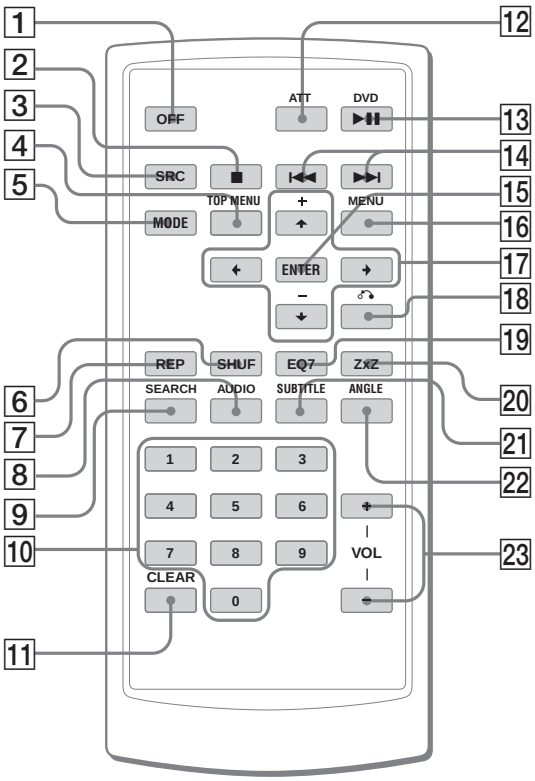
1 ZxZ button
2 SOURCE button
3 SOURCE button
4 A/V IN jack
5 VOL –/+ button
6 Display window
7 TILT button
8 OPEN/CLOSE button
9 ANGLE – button
10 ANGLE + button
11 SLIDE button
12 MODE button
13 RELEASE button
14 ⏏ (eject) button
15 SEEK –/+ I◄◄ /►►I button
16 OFF button

* **Warning when installing in a car without an ACC (accessory) position on the ignition key**
After turning off the ignition, be sure to press OFF on the unit for 2 seconds to turn off the clock display. Otherwise, the clock display does not turn off and this causes battery drain.

Location of Controls

Card remote commander RM-X706

The unit can be operated with the card remote commander. For safety, stop the car before using the card remote commander, or have a passenger operate it.



Refer to the pages listed for details.

1 **OFF button**
To power off the source.

2 **■ button**
To stop the source (VCD / DVD).

3 **SRC (SOURCE) button**
To power on / change the source (CD / DVD / TUNER / AUX / TV*[1]).

4 **TOP MENU button**
To display the top menu on a DVD.

5 **MODE button**
To select the radio band (FM / AM) / select AUX / select TV / select the unit.

6 **SHUF button**

7 **REP button**

8 **AUDIO button**
To change the audio output (VCD / DVD).

9 **SEARCH button (VCD*[2]/DVD)**

10 **Number buttons**

11 **CLEAR button**
To cancel entered numbers.

12 **ATT button**
To attenuate the sound. To cancel, press again.
Turning off the sound temporarily.
When you press the button, the sound is turned off and "ATT" appears on the display.
To restore the sound, press the button again (or VOL + / –).

13 **DVD▶II button**
To start / pause playback.

14 **I◀◀ / ▶▶I buttons**

15 **ENTER button**
To complete a setting.

16 **MENU button**
To display a menu on a DVD.

17 **←/↑/↓/→ buttons**
To move the cursor, or turn the pages.

18 **↶ (Return) button**
To return to the previous display, or previous operation.

19 **EQ7 button**
To select an equalizer type (Xplod, Vocal, Club, Jazz, New Age, Rock, Custom or Off).

20 **ZxZ (Zone x Zone) button**
To switch the front / rear output.

21 **SUBTITLE button**
To change the subtitle language (DVD).

22 **ANGLE button**
To change the viewing angle (DVD).

23 **VOL +/– buttons**
To adjust the volume.

*[1] Only when an optional device is connected.
*[2] Only when PBC is Off.

Note

If the unit is turned off by pressing OFF for 2 seconds, it cannot be operated with the card remote commander unless SOURCE on the unit (3) is pressed to activate the unit first.

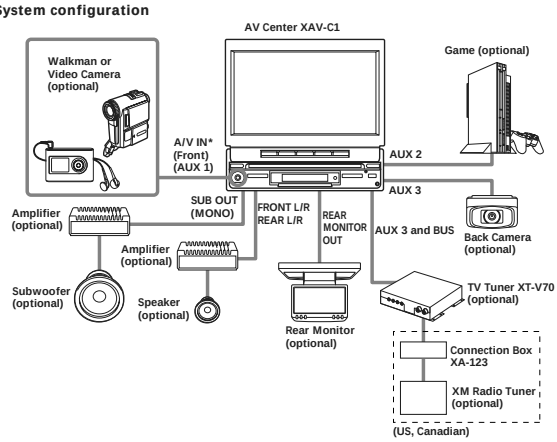
Tip

See "Replacing the lithium battery" for details on how to replace the battery.

Connection Example

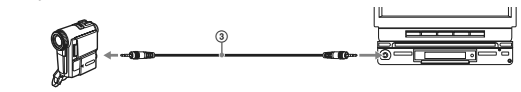
For details, see the section "1 Car Systems Connections" (pages 7 - 10). Be sure to refer also to the documentation for all other components in the system.

System configuration

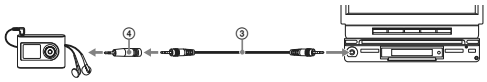


* Connect with supplied connecting cable ③. (Use a conversion plug ④ when you connect the audio equipment.)

When you connect the video camera



When you connect the audio player



Notes

- Be sure to connect the ground cord before connecting the amplifier.
- If you connect an optional power amplifier and do not use the built-in amplifier, the beep sound will be deactivated.

Connecting Information

For details, see the section "1 Car Systems Connections" (next page).

Notes

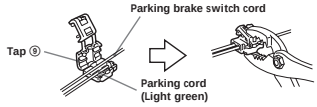
- Be sure to connect the power input cord after all other cords are connected.
- If the parking brake switch cord is too thin, connect the parking cord to the parking brake switch cord directly without using the tap.

Connecting the cords

Connect each cord using the taps. For the combination of each cord, see the following table. Also, see the section "1 Car Systems Connections" (next page).

Main unit side	Car side
Orange / white	Illumination signal cord
Purple / white	Power terminal cord of the back lamp
Light green	Parking brake switch cord

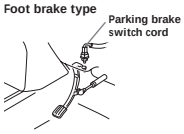
Using the tap



Connecting the parking cord

The mounting position of the parking brake switch cord depends on your car. Refer to the system connection illustrations below and consult your car dealer or your nearest Sony dealer for further details.

Foot brake type



Hand brake type

The cord for utilizing the back camera better

Purple/white cord (for the connection to the power terminal cord of the back lamp)

If you connect the purple / white cord to the power terminal cord of the back lamp, the image of back camera will be automatically displayed on the monitor when a back lamp lights up. You can adjust the parking location viewing the image of back camera when you backup.

1 Car Systems Connections

Refer also to the documentation for all other components in the system.

Also see "Connecting Information" on page 6.

- Components listed here except for supplied accessories are available separately. When connecting such components, be sure to also refer to their documentation.
  For specifications and other information on separately available components, contact your dealer.

Prevention of accidents caused by short-circuits

To prevent the risk of accidents caused by short-circuits, connect the power supply leads (red and yellow) only after all other wiring has been completed, and only with the ignition key in the OFF position. Otherwise, accidental short-circuiting can lead to electric shock and to serious damage.

When a fuse has blown, check the wiring and locate the cause of the problem before replacing the fuse. When replacing the fuse, be sure to use only a fuse of the same rating (ampere rating). Using a different fuse or bridging the contacts with wire is highly dangerous and can lead to serious damage.

Make sure to connect all of the following leads.

Otherwise there is a risk of electric shock, damage to the equipment, or malfunction.

- Connect purple / white lead to back lamp lead of car.
- Connect orange / white lead to illumination signal lead of car.
- Connect light green lead to parking brake switch lead of car.
- Connect yellow lead to battery power supply of car.
- Connect red lead to accessory power supply of car.
- Connect black lead to metal point on car chassis.

* **Do not mix up the yellow and red leads, as this will cause the memory contents to be lost.**

Observe the following precautions.

Otherwise there is a risk of electric shock, damage to the equipment, or malfunction.

- Cover unused connectors with electrician's tape to prevent accidental contact.
- Route FM / AM antenna cable, bus cable, RCA interconnects, and power supply leads as far apart from each other as possible, to prevent noise interference.
- Always grasp the connector and do not pull the cable when disconnecting the bus cable or other cables. Otherwise the cable may become detached.

Notes on the control and power supply leads

- The power antenna control lead (blue) supplies +12 V DC when turn on the tuner.
- When your car has built-in FM / AM antenna in the rear / side glass, connect the power antenna control lead (blue) or the accessory power input lead (red) to the power terminal of the existing antenna booster. For details, consult your dealer.
- A power antenna without relay box cannot be used with this unit.

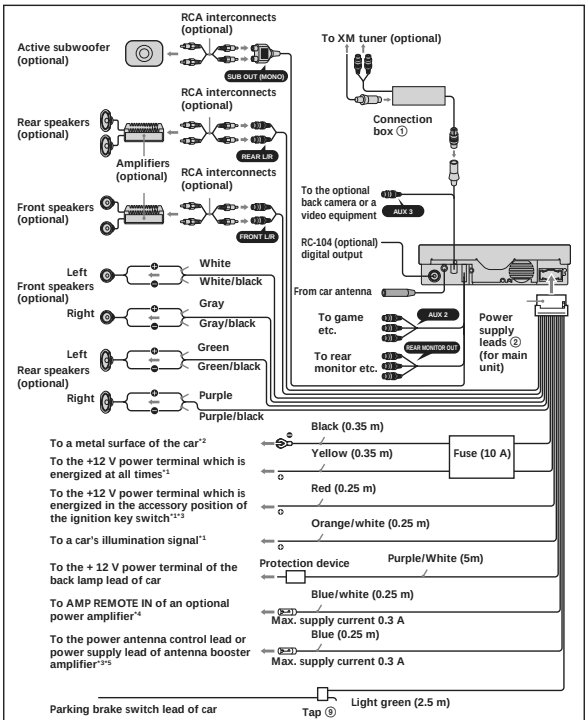
Memory hold connection

When the yellow power input lead is connected, power will always be supplied to the memory circuit even when the ignition key is turned off.

Notes on speaker connection

- Before connecting the speakers, turn the unit off.
- Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities to avoid its damage.
- Do not connect the speaker terminals to the car chassis, or connect the terminals of the right speakers with those of the left speaker.
- Do not connect the ground lead of this unit to the negative ⊖ terminal of the speaker.
- Do not attempt to connect the speakers in parallel.
- Connect only passive speakers. Connecting active speakers (with built-in amplifiers) to the speaker terminals may damage the unit.
- To avoid a malfunction, do not use the built-in speaker wires installed in your car if the unit shares a common negative ⊖ lead for the right and left speakers.
- Do not connect the unit's speaker cords to each other.

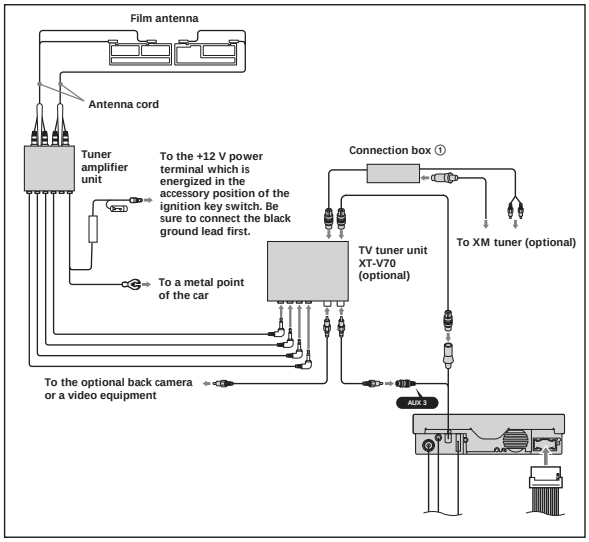
Connecting without optional TV tuner unit (Except AEP, Russian)



*1 Be sure to connect the black ground lead to it first.
*2 First connect the black ground lead, then connect the yellow and red power input leads.
*3 When your car has built-in FM / AM antenna in the rear / side glass, see "Notes on the control and power supply leads" (page 7).
*4 This connection is only for amplifiers. Connecting any other system may damage the unit.
*5 It is not necessary to connect this lead if there is no power antenna or antenna booster, or with a manually-operated telescopic antenna.

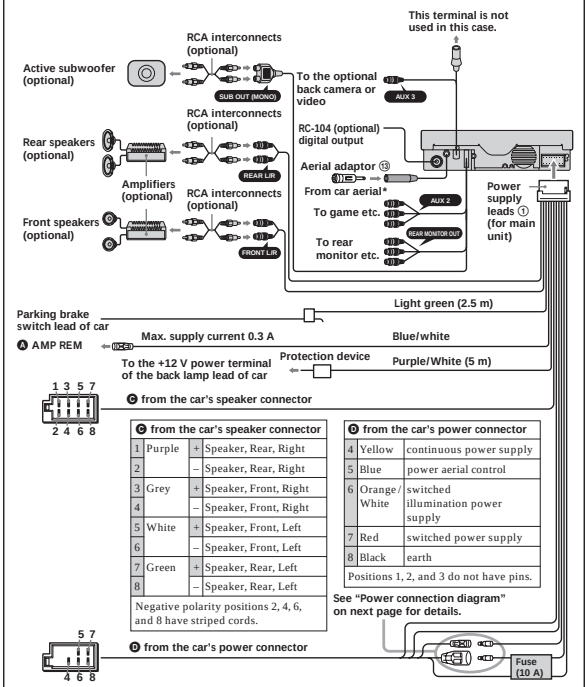
Note on the accessory power input lead (red)
If there is no accessory position, connect to the +12 V power (battery) terminal which is energized at all times.

Connecting with optional TV tuner unit (Except AEP)



Connecting without optional TV tuner unit (AEP, Russian)

*** Note for the aerial connecting**
If your car aerial is an ISO (International Organization for Standardization) type, use the supplied adaptor ⑬ to connect it. First connect the car aerial to the supplied adaptor ⑬, then connect it to the aerial jack of the main unit.



C from the car's speaker connector			
1	Purple	+	Speaker, Rear, Right
2		–	Speaker, Rear, Right
3	Grey	+	Speaker, Front, Right
4		–	Speaker, Front, Right
5	White	+	Speaker, Front, Left
6		–	Speaker, Front, Left
7	Green	+	Speaker, Rear, Left
8		–	Speaker, Rear, Left

Negative polarity positions 2, 4, 6, and 8 have striped cords.

D from the car's power connector		
4	Yellow	continuous power supply
5	Blue	power aerial control
6	Orange / White	switched illumination power supply
7	Red	switched power supply
8	Black	earth

Positions 1, 2, and 3 do not have pins.

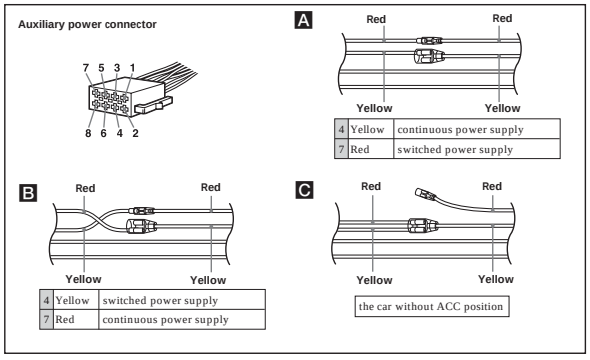
See "Power connection diagram" on next page for details.

A To AMP REMOTE IN of an optional power amplifier
This connection is only for amplifiers. Connecting any other system may damage the unit.

Warning
If you have a power aerial without a relay box, connecting this unit with the supplied power supply leads ① may damage the aerial.

Power connection diagram

Auxiliary power connector may vary depending on the car. Check your car's auxiliary power connector diagram to make sure the connections match correctly. There are three basic types (illustrated below). You may need to switch the positions of the red and yellow leads in the car stereo's power connecting cord. After matching the connections and switched power supply leads correctly, connect the unit to the car's power supply. If you have any questions and problems connecting your unit that are not converted in this manual, please consult the car dealer.

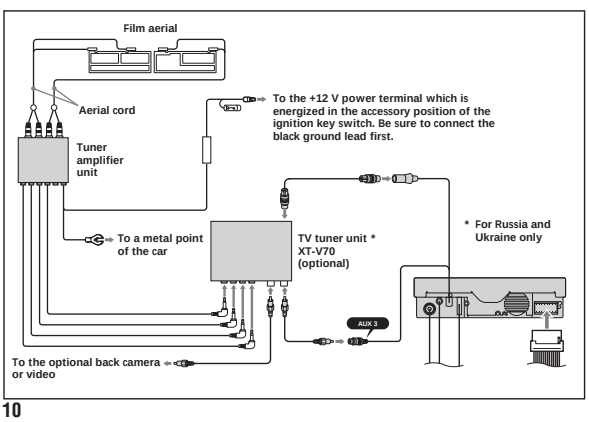


A		
4	Yellow	continuous power supply
7	Red	switched power supply

B		
4	Yellow	switched power supply
7	Red	continuous power supply

C: the car without ACC position

Connecting with optional TV tuner unit (Except AEP)



2 Installing the Main Unit

Installation angle
The unit should be installed within an angle of 30 degrees from horizontal. If this angle is exceeded, the monitor may not open up or retract properly.

After all connections are made, install the main unit to the dashboard.

Before installation

This unit is designed to be completely safe, but if not installed correctly, it can cause accidents. Be sure to verify the following points before installation.
Install the main unit to the in-dash location, and the amplifier unit under the navigator's seat, etc.
- If the monitor in the opened position is close to a air-conditioning outlet, the outlet should be closed.
- Install the unit so that the monitor when opened up will not block access to the hazard switch or other important controls.
- Do not install the unit (monitor) in locations which may be subject to excessively low or high temperatures. (Otherwise the unit may be deformed and the LCD may be damaged.) Exposure to direct sunlight can also lead to high temperatures and should be avoided.

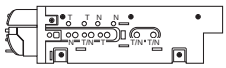
Note
Keep the units and connection cables apart.

Selecting the installation location

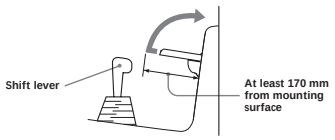
1 Set the ignition key to OFF or remove it.

2 Place the units in their intended mounting locations to check the cable length and monitor installation conditions.

Installation procedure precautions
- Perform the installation carefully. Dropping the unit or otherwise subjecting it to strong impact or force may deform the chassis, resulting in failure of the monitor loading mechanism or other defects.



- To allow for proper opening and closing of the monitor, there must be a clearance of at least 170 mm between the closest position of the shift lever and the mounting surface for the unit.

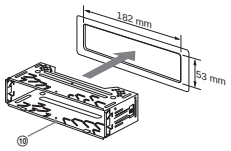


- In some cases, the shift lever may touch the monitor when moved to a certain position. Make sure that there is no obstruction to driving operations.
- When installing this unit together with other car audio equipment (single DIN slot size) in a stacked configuration, install the main unit on top.

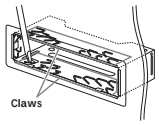
Installation procedure

Mounting example
When installing this unit, be sure to close the monitor of the unit. If the monitor is opened while installing and given too much force, it may cause a malfunction.

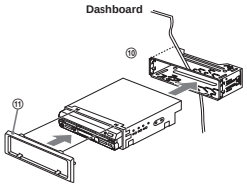
1



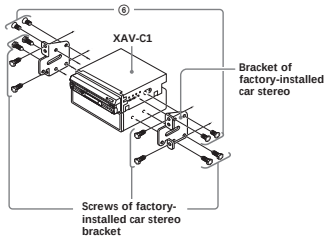
2



3

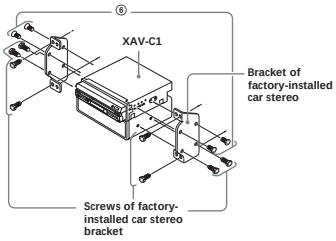


Toyota cars (illustration shows an example for a Toyota car)
Align the brackets of the factory-installed car stereo with the mounting holes marked "T" on the side of the main unit, and use the supplied screws ⑥ should be used.



Notes
- Do not press the front panel buttons of the unit during installation and do not apply strong force.
- Do not place any objects on top of the unit.
- If a salient of the genuine bracket touches the unit due to its figure, and makes attachment hard, process the bracket by scraping the salient off.

Nissan cars
Align the brackets of the factory-installed car stereo with the mounting holes marked "N" on the side of the main unit, and use the supplied pan-head screws ⑥ to fasten the brackets.



* Be sure to use only the supplied pan-head screws ⑥ for installation. If any other screws are used, make sure they conform to the requirements shown below.
Using longer screws can cause internal damage to the unit.

Damage can also occur if the screws are used directly on the unit without the brackets of the factory-installed car stereo.

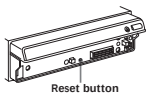
3 After Installation and Connections

1 Start the car's engine.

2 Verify that the brake lights, other lights, horn, turn indicators, and all other electrical parts operate normally.

Note
To avoid the possibility of damage, you should not use a needle or push the button too strongly.

3 Use a mechanical-pencil or similar to push the Reset button on the unit.

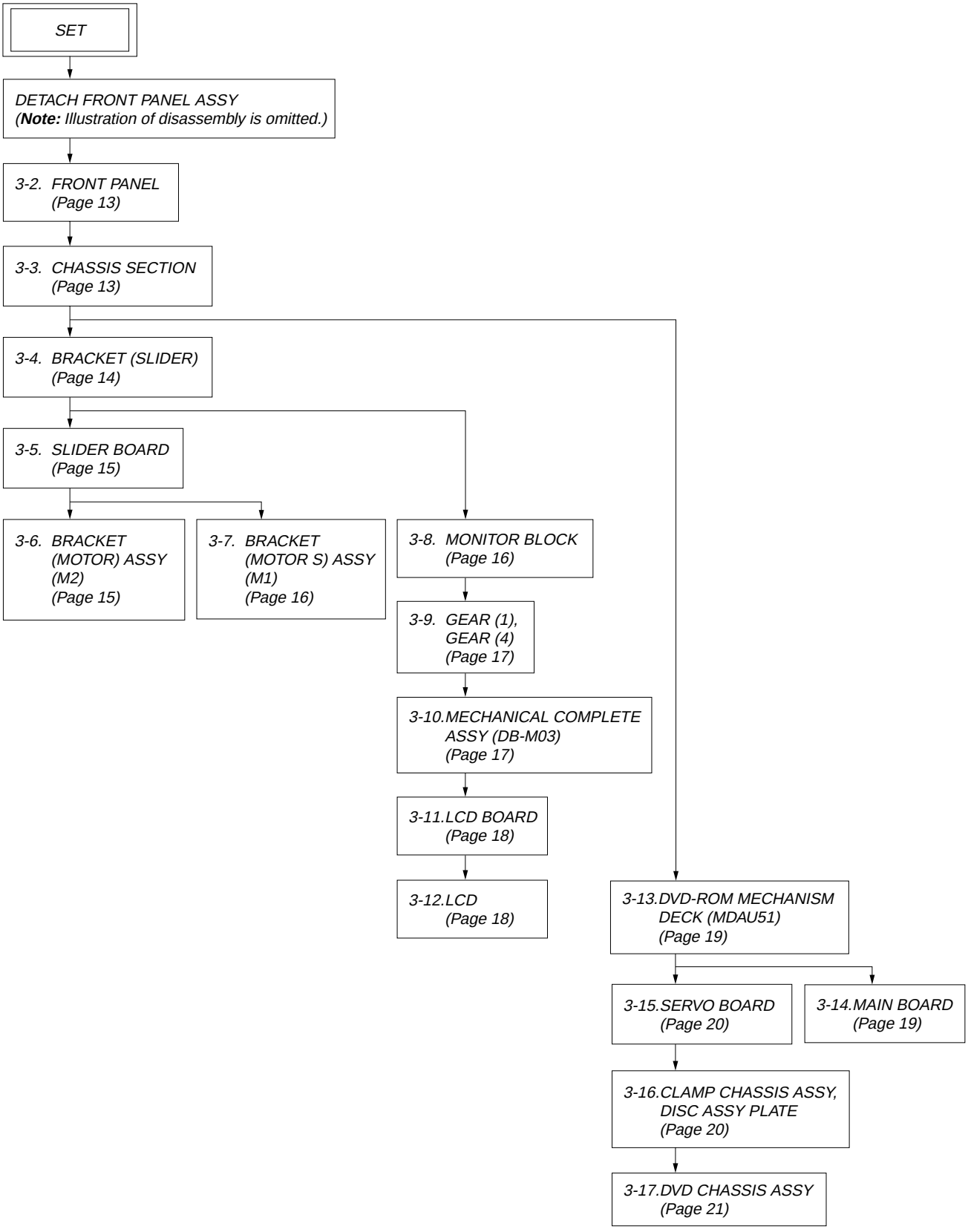


When you press the Reset button, the system becomes operative.

SECTION 3
DISASSEMBLY

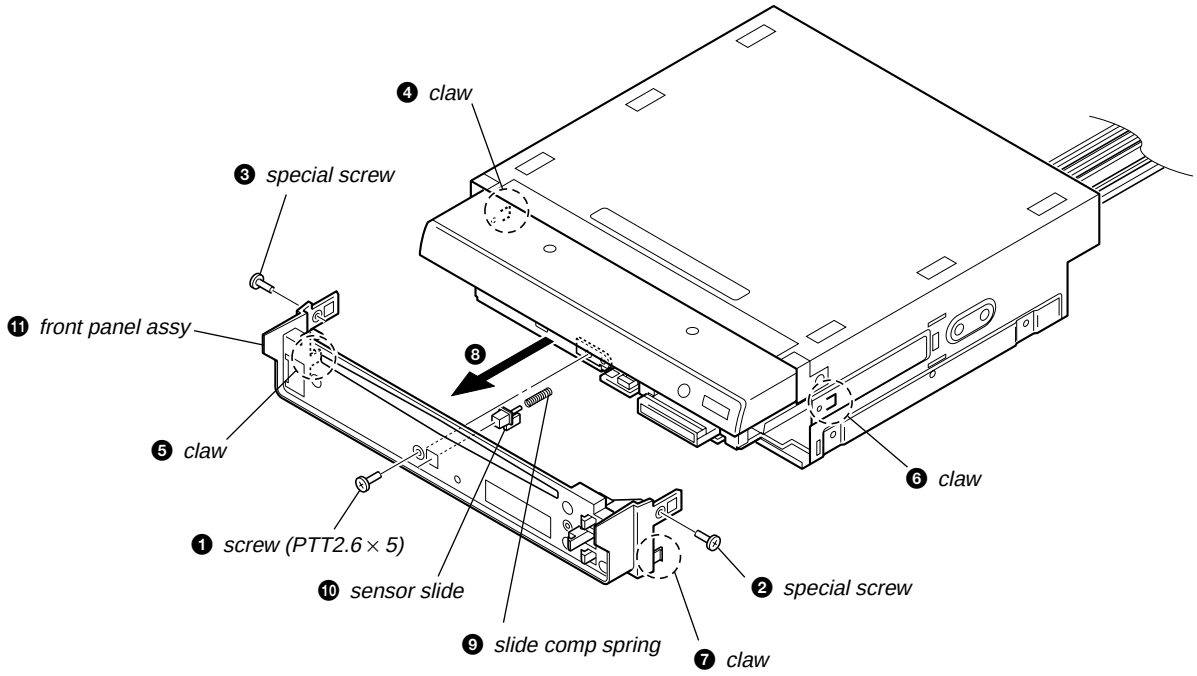
- This set can be disassembled in the order shown below.

3-1. DISASSEMBLY FLOW

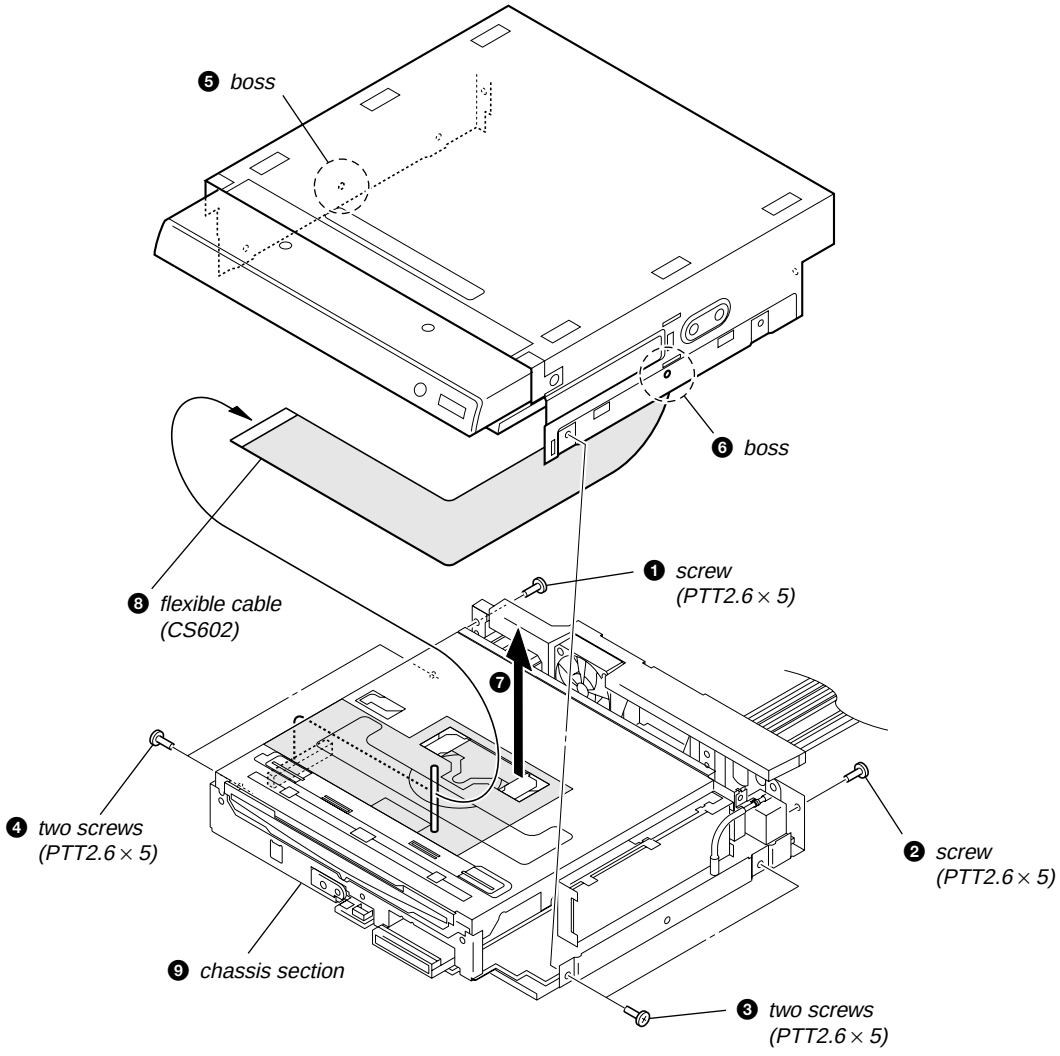


Note: Follow the disassembly procedure in the numerical order given.

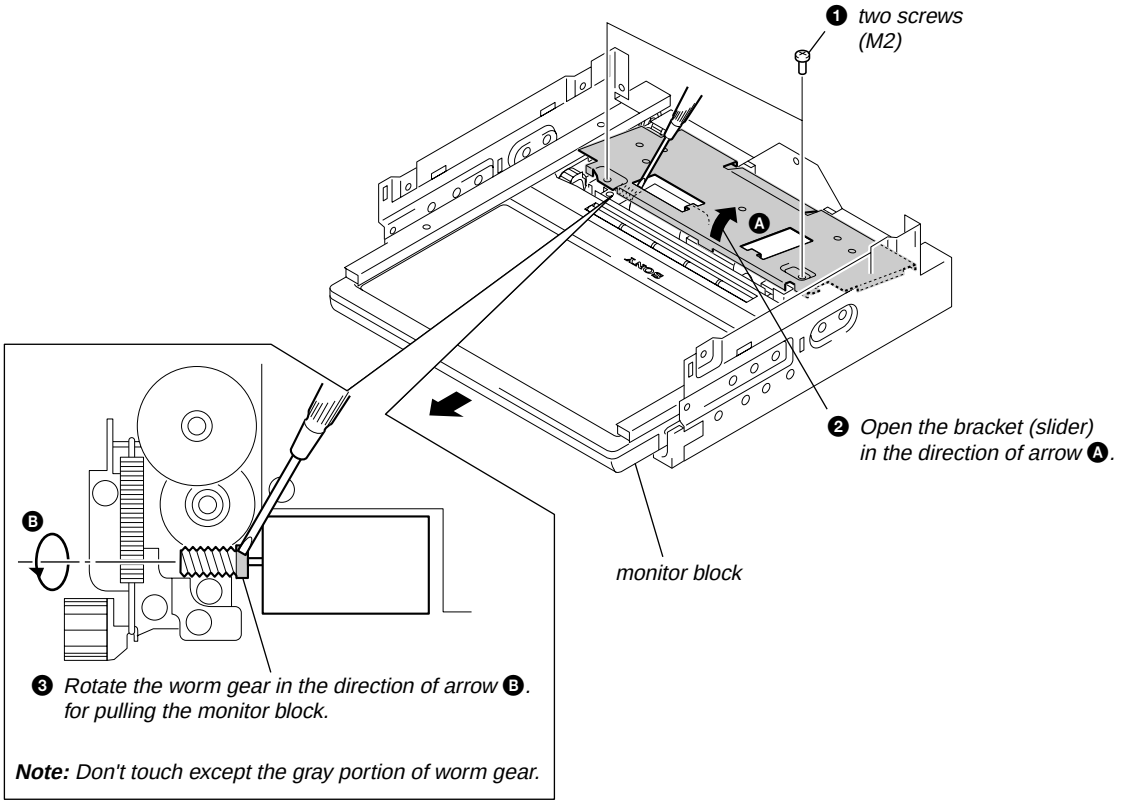
3-2. FRONT PANEL ASSY

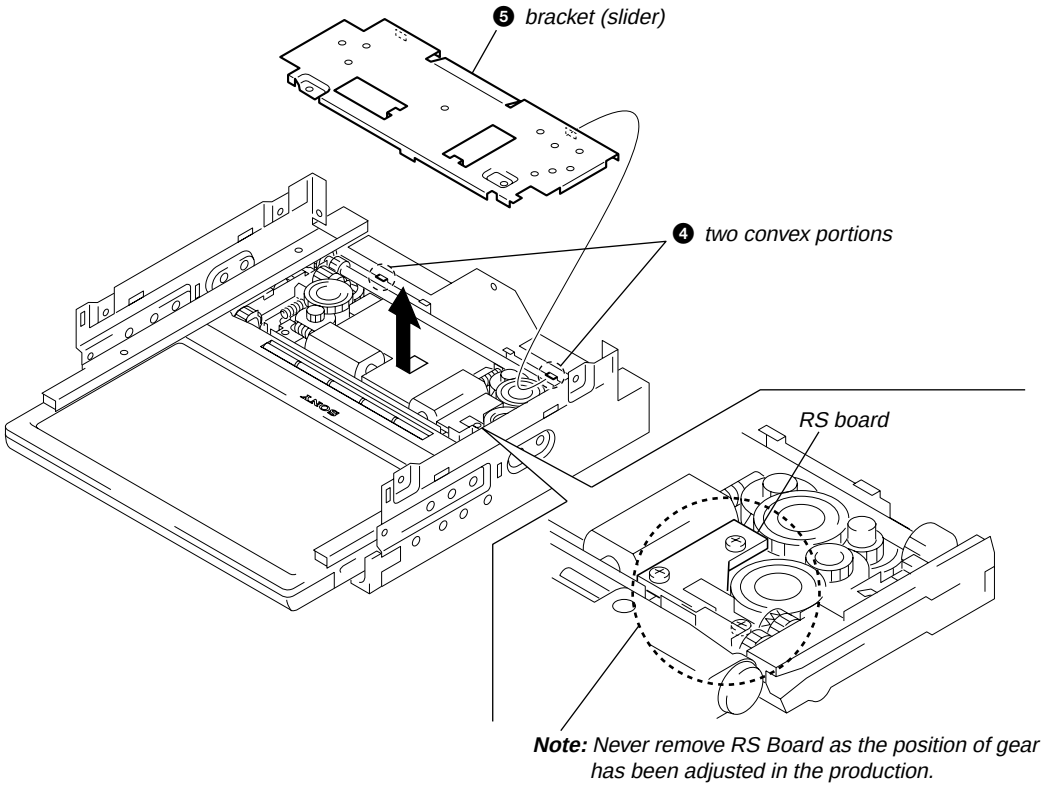


3-3. CHASSIS SECTION

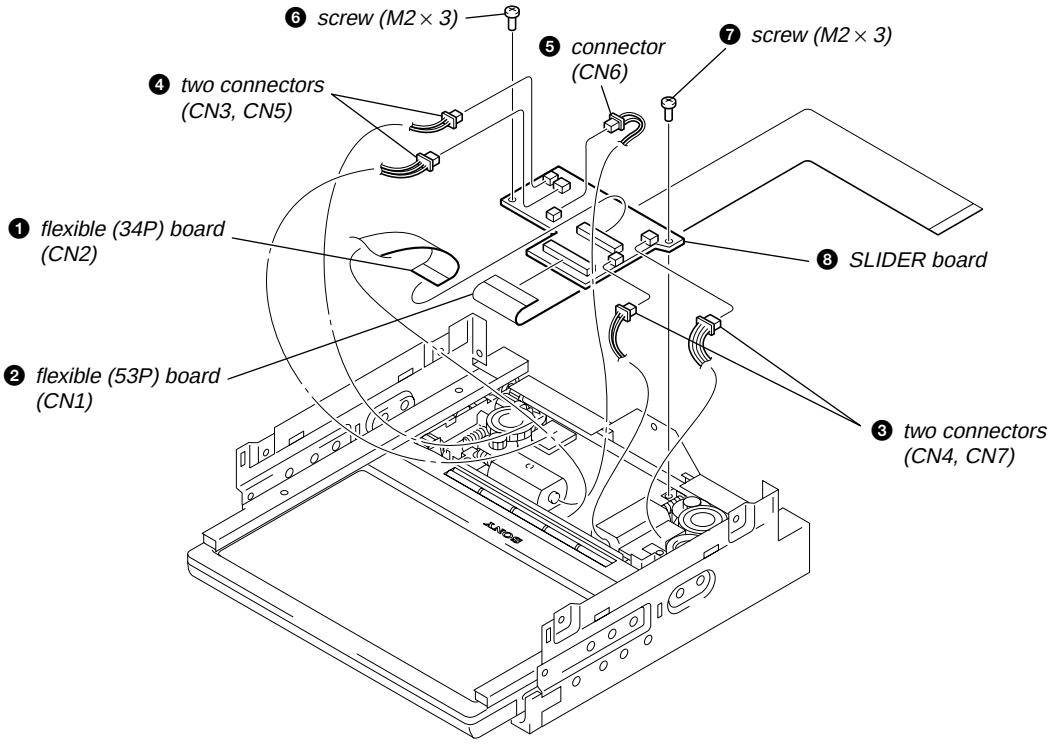


3-4. BRACKET (SLIDER)

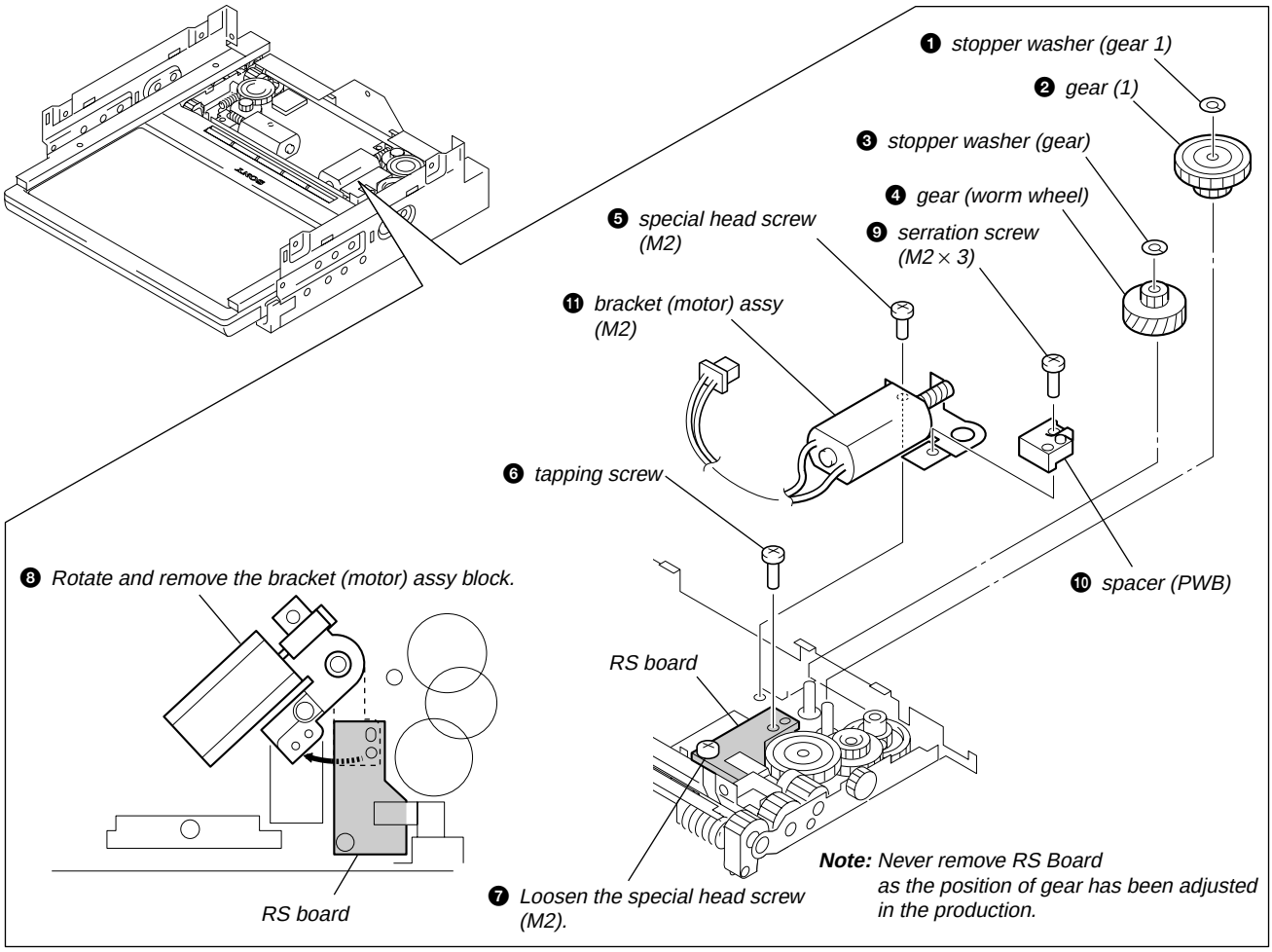




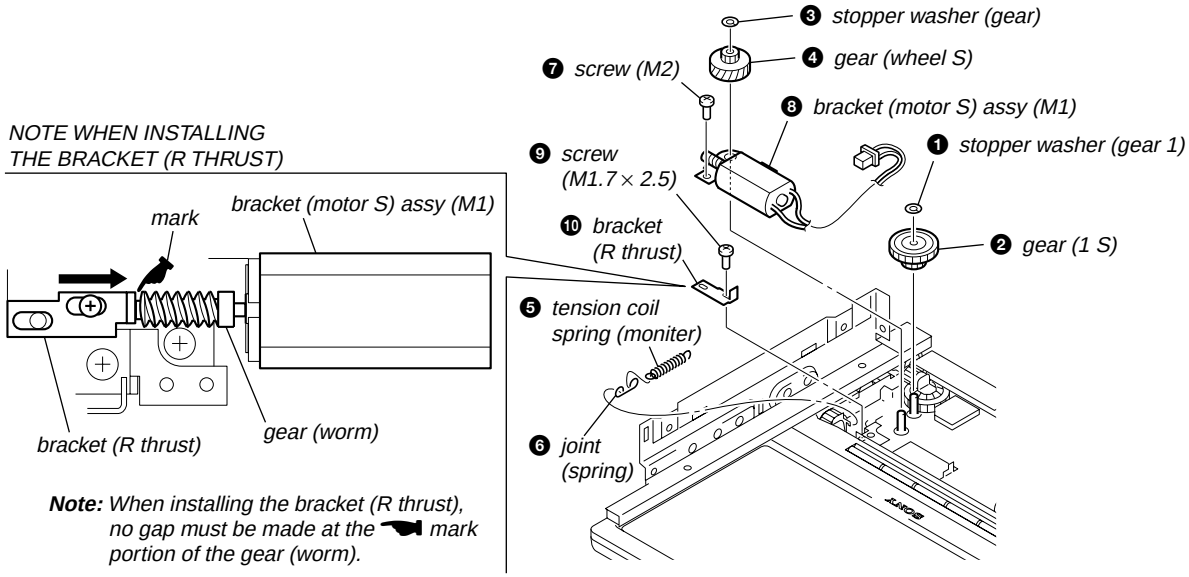
3-5. SLIDER BOARD



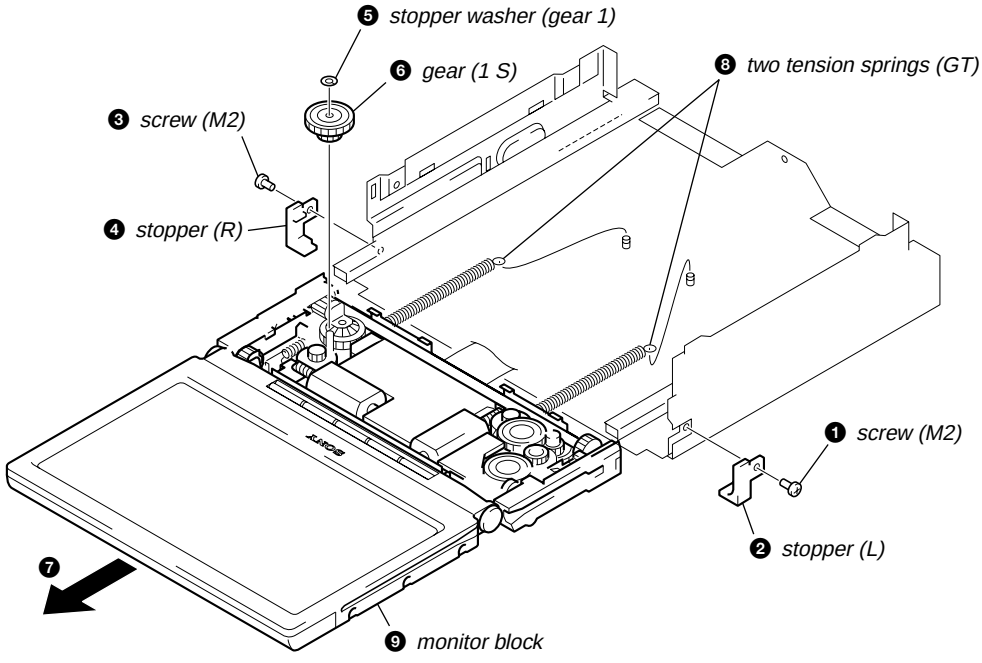
3-6. BRACKET (MOTOR) ASSY (M2)



3-7. BRACKET (MOTOR S) ASSY (M1)

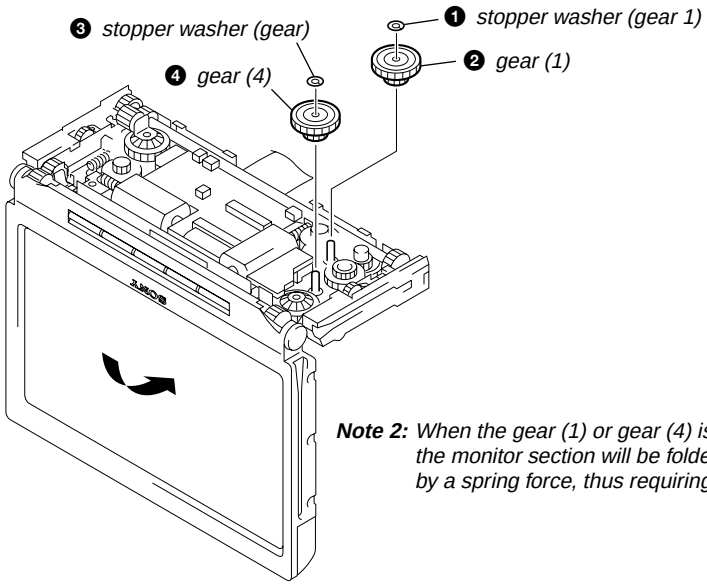


3-8. MONITOR BLOCK



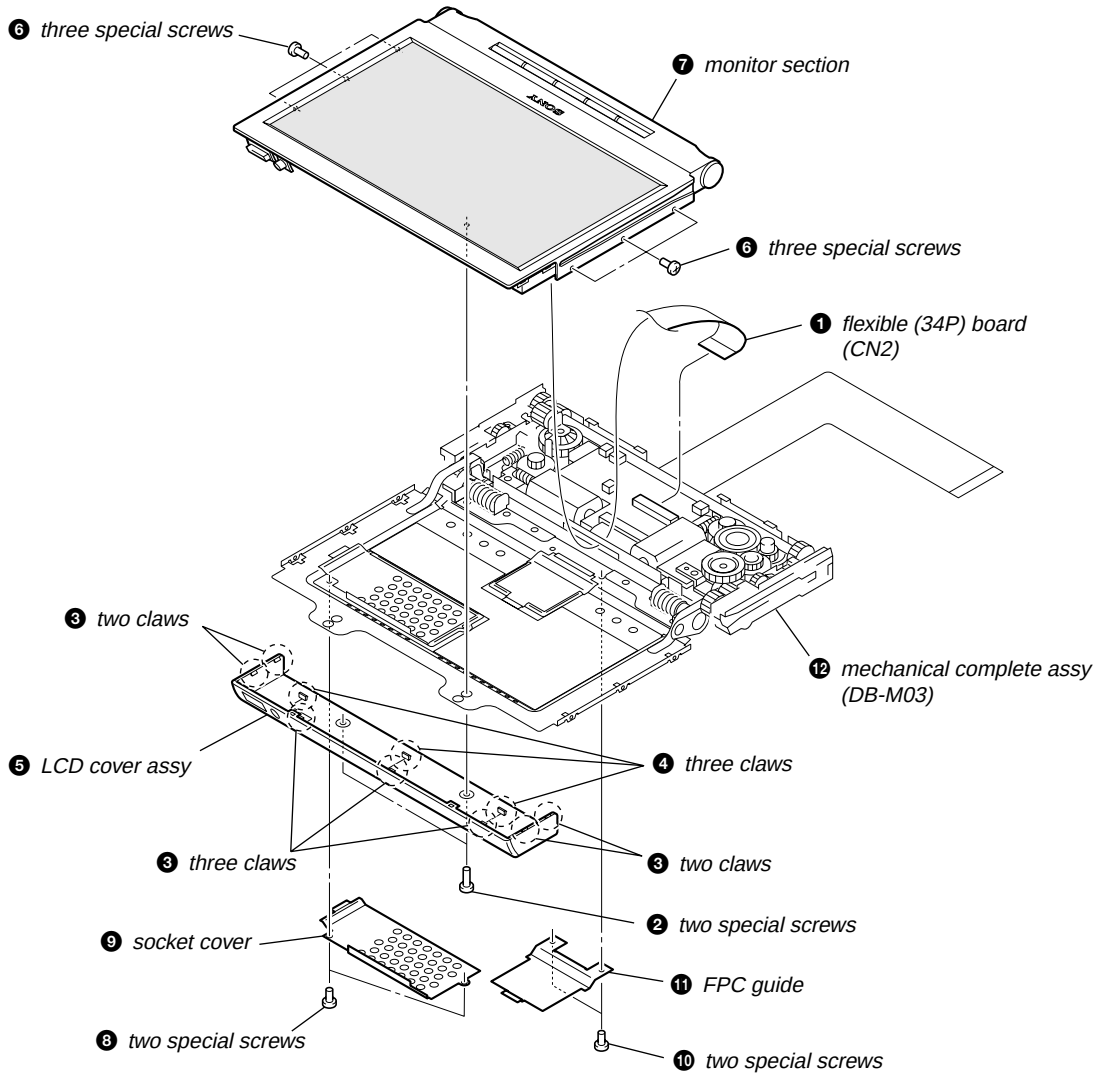
3-9. GEAR (1), GEAR (4)

Note 1: *For the gear (1) and gear (4), there is no problem whichever may be removed first.*

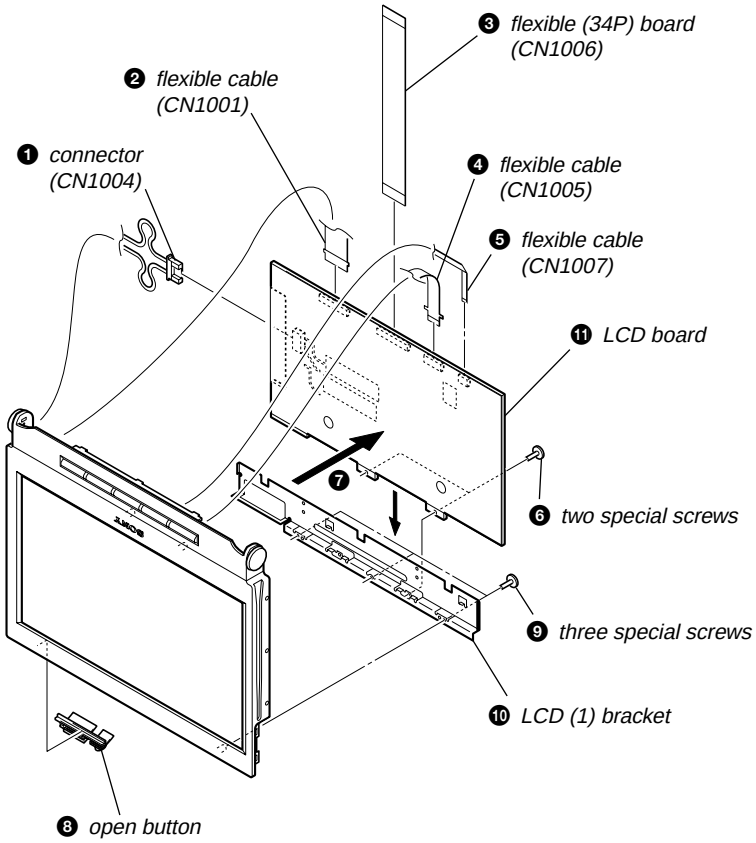


Note 2: *When the gear (1) or gear (4) is removed, the monitor section will be folded abruptly by a spring force, thus requiring care for handling.*

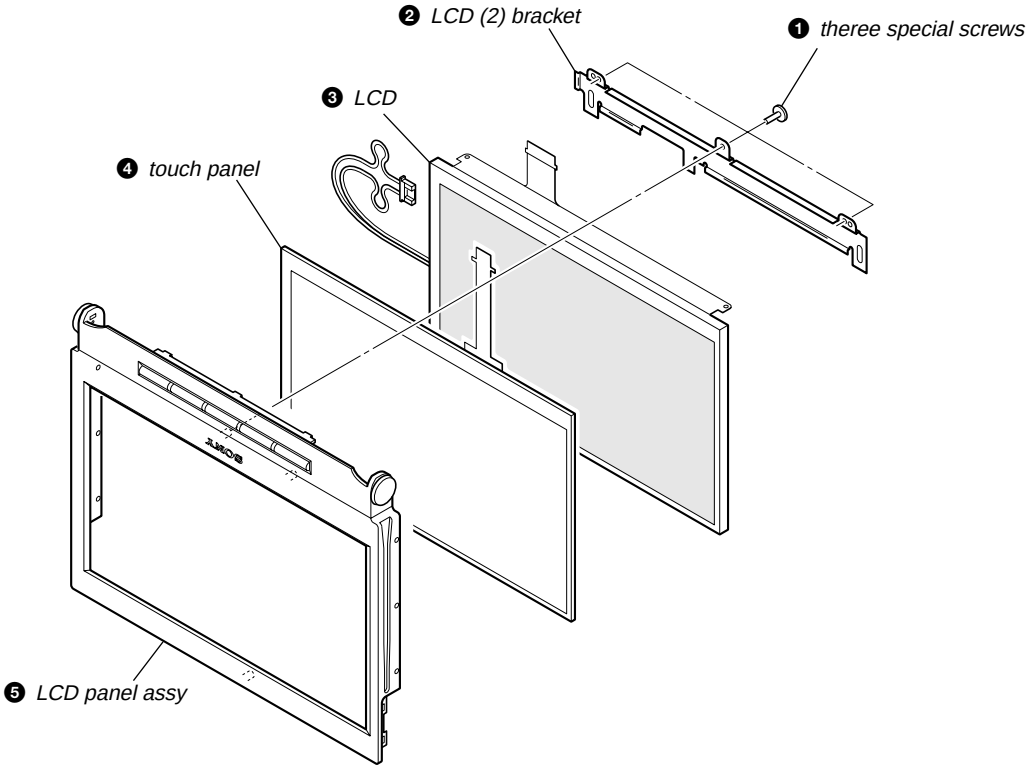
3-10. MECHANICAL COMPLETE ASSY (DB-M03)



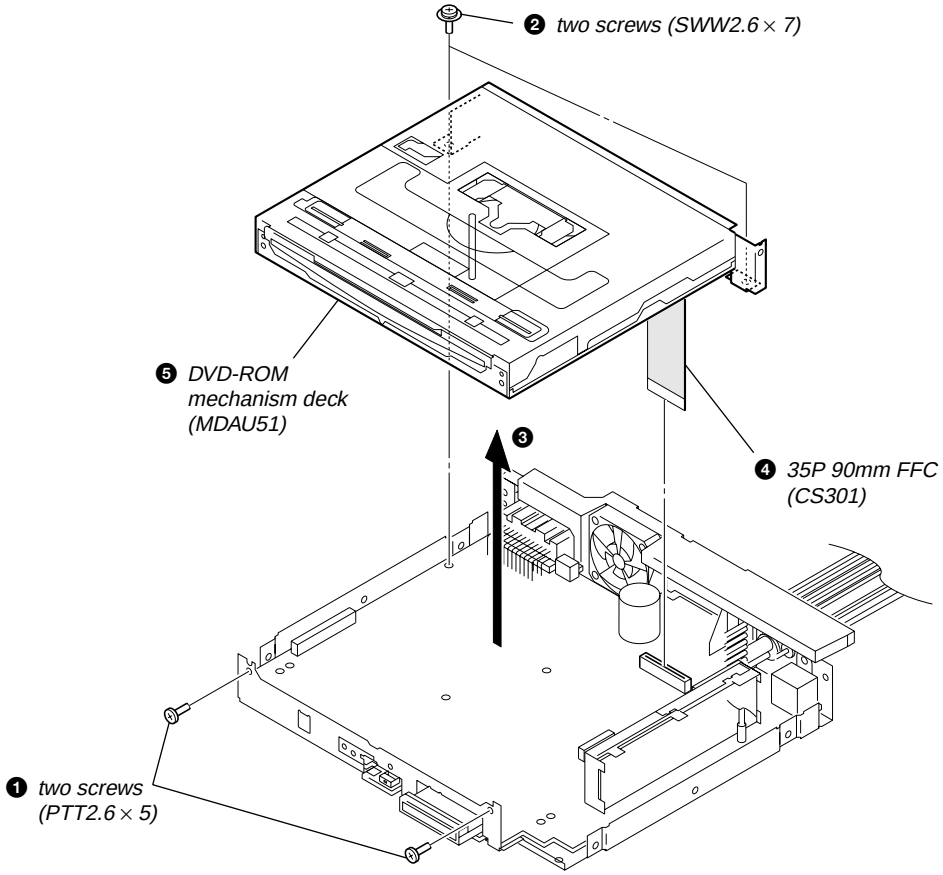
3-11. LCD BOARD



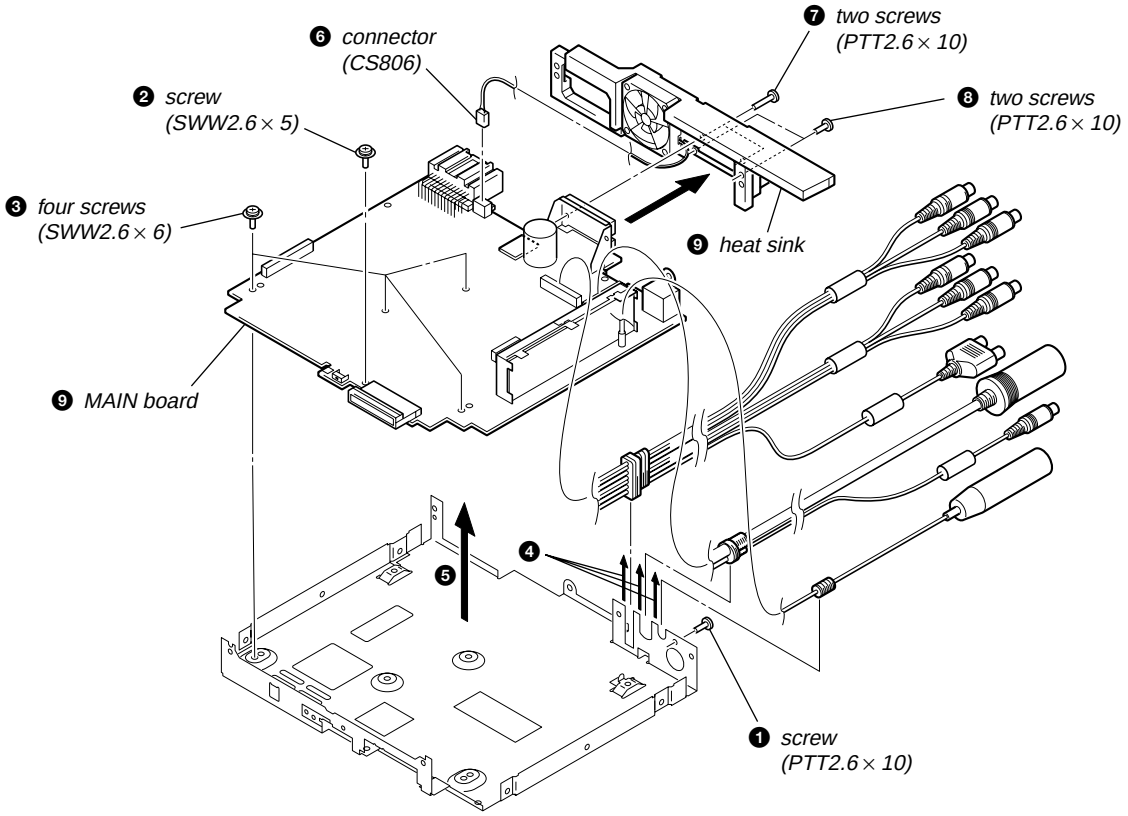
3-12. LCD



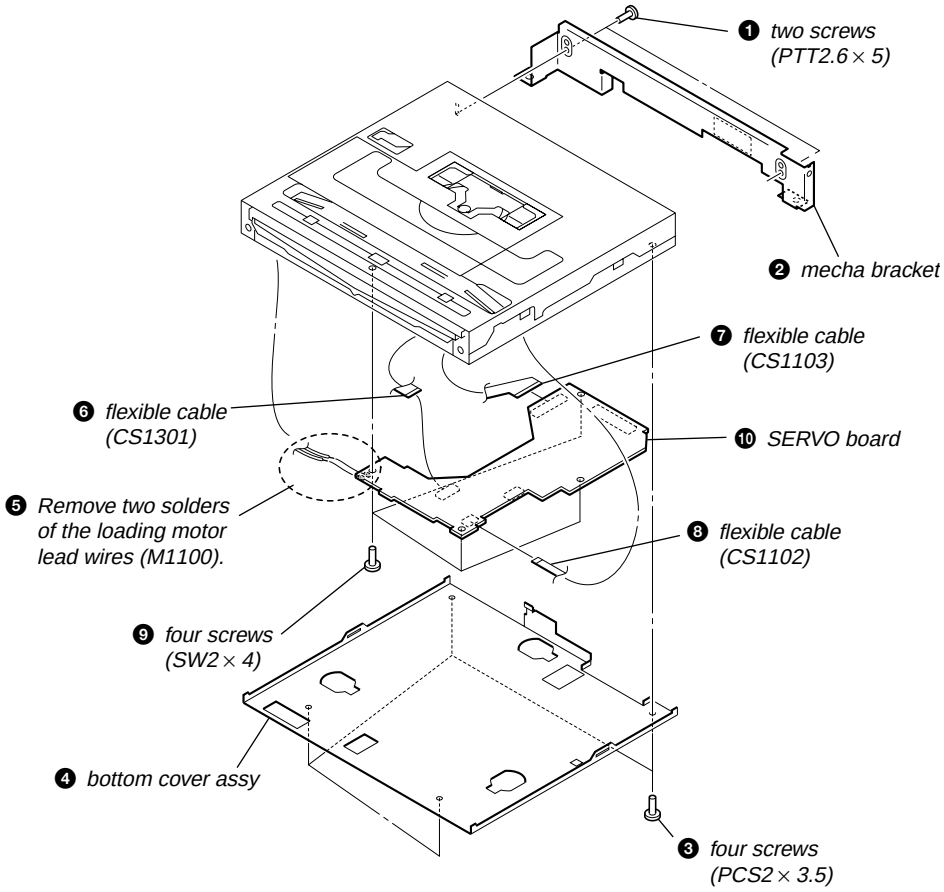
3-13. DVD-ROM MECHANISM DECK (MDAU51)



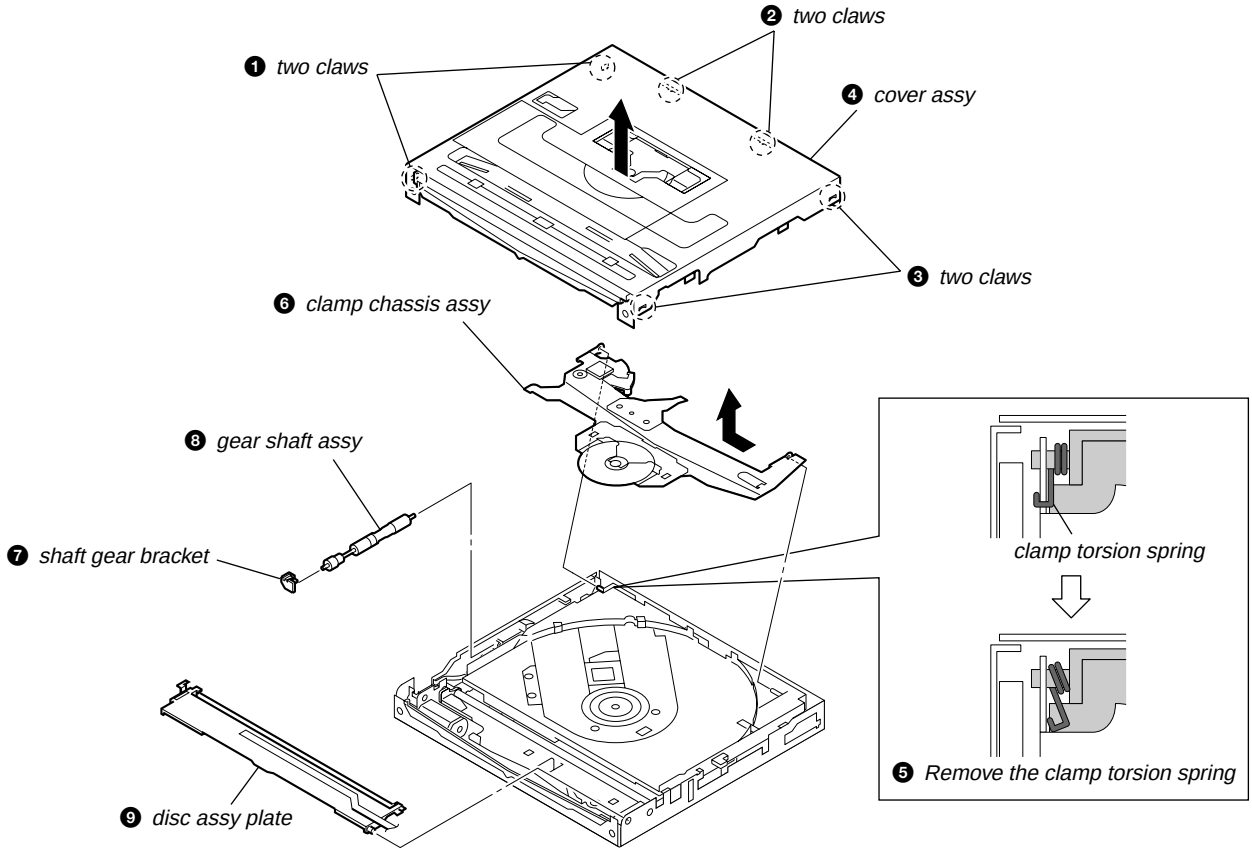
3-14. MAIN BOARD



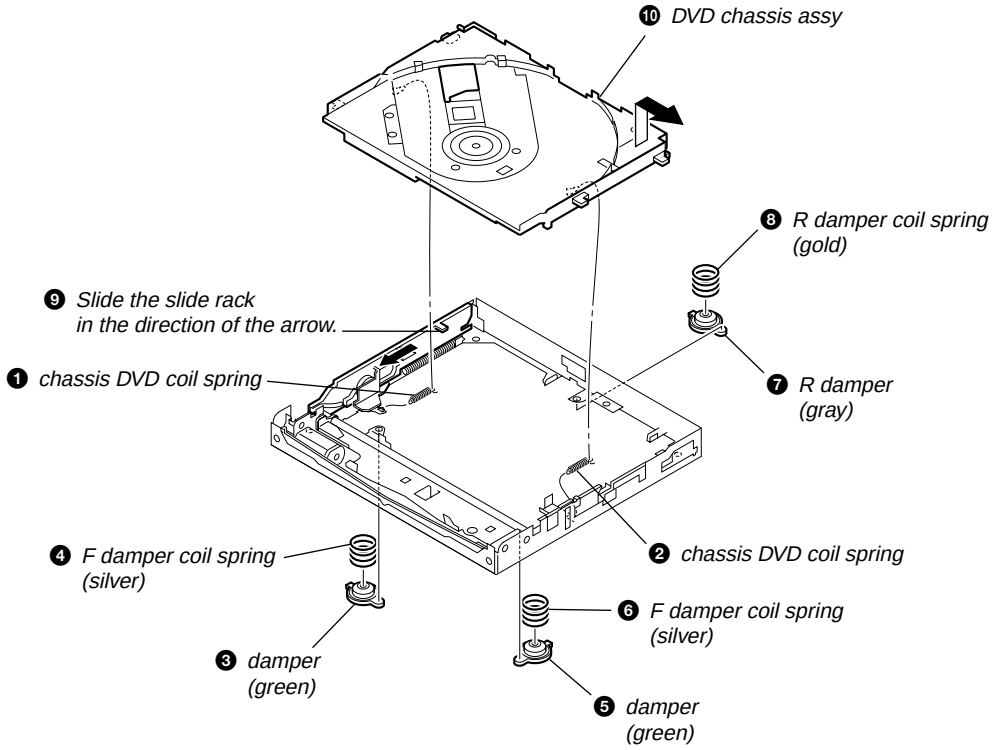
3-15. SERVO BOARD



3-16. CLAMP CHASSIS ASSY, DISC ASSY PLATE



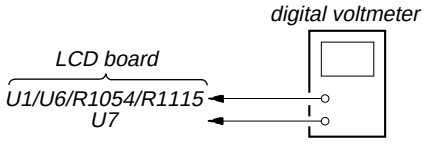
3-17. DVD CHASSIS ASSY



SECTION 4
ELECTRICAL ADJUSTMENTS

VOLTAGE ADJUSTMENT

Setting:



Procedure:

1. Connect a digital voltmeter to the U6 and U7 on the LCD board.
2. Adjust the SVR1001 on the LCD board so that the value of digital voltmeter becomes +5.4 V ± 0.05 V.
3. Connect a digital voltmeter to the R1115 and U7 on the LCD board.
4. Confirm that the value of digital voltmeter is +5.0 V ± 0.1 V.
5. Connect a digital voltmeter to the U1 and U7 on the LCD board.
6. Adjust the SVR1002 on the LCD board so that the value of digital voltmeter becomes –14.0 V ± 0.1 V.
7. Connect a digital voltmeter to the R1054 and U7 on the LCD board.
8. Confirm that the value of digital voltmeter is +14.5 V ± 0.5 V.

Adjustment and Connection Location: LCD board

TOUCH PANEL ADJUSTMENT

Note: After the end of voltage adjustment, this adjustment is performed.

Procedure:

1. Turn the power on and set th FM mode.
2. Press the [OPEN/CLOSE] button to open the monitor.
3. Touch in order of [SOURCE], [MENU], [OTHER] and [Touch Panel Adjust] on the monitor to display three points on the monitor.
4. Touch in order of point [1], [2] and [3] on the monitor.

SETTING THE TEST MODE

Procedure:

1. Turn the power on and press the [OPEN/CLOSE] button to open the monitor.
2. Press the [OFF] button to set the OFF state.
3. Press the [SOURCE] and [SEEK +] buttons simultaneously for several seconds.
4. When test mode is activated, “Picture” is displayed on the monitor and segments of sub display all lit.

BASIC OPERATIONS OF THE TEST MODE

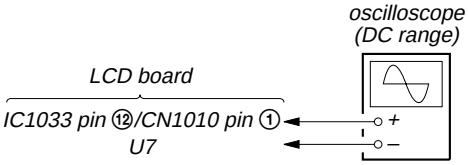
The functions of these buttons are as follows.

Button	Function
[SEEK +]/[SEEK –] button	Proceeding and return of adjustment item*
[VOL +]/[VOL –] button	Increase and decrease of adjustment value
[OFF] button	Writing of adjustment value and releasing of test mode

* The adjustment item switches as follows whenever the [SEEK +]/[SEEK –] button is pressed; ⋯↔ Picture ↔ Color ↔ Tint(HUE) ↔ Phase ↔ Cont-Video ↔ Cont-RGB1 ↔ Cont-RGB2 ↔ GAMMA 1 ↔ GAMMA 2↔ RGB AMP. ↔ Bright ↔ SUB-Bright-R ↔ SUB-Bright-B ↔ COM-Amp. ↔ Flicker-NTSC ↔ Flicker-PAL ↔ ⋯.

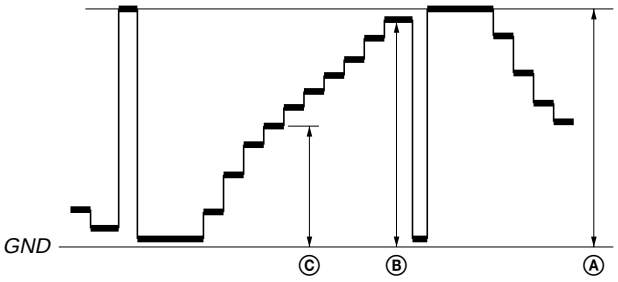
MONITOR ADJUSTMENT

Setting:

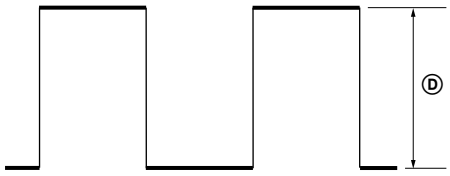


Procedure:

1. Connect a TV SSG to the AUX3 jack on the MAIN board.
2. Input 10 steps signal (chroma off, NTSC composite video) from AUX3 jack on the MAIN board.
3. Connect an oscilloscope to the IC1033 pin ⑫ and U7 on the LCD board.
4. Set the test mode and press the [SEEK +]/[SEEK –] button to select the “RGB AMP.”.
5. Adjust the [VOL +]/[VOL –] button so that the Ⓐ level of the waveform on the oscilloscope becomes 4.3 V ± 0.05 V. (Vb-b adjustment)
6. Press the [SEEK +]/[SEEK –] button to select the “Cont-Video”.
7. Adjust the [VOL +]/[VOL –] button so that the Ⓑ level of the waveform on the oscilloscope becomes 3.2 V ± 0.05 V. (Vb-w adjustment)
8. Press the [SEEK +]/[SEEK –] button to select the “Bright ”.
9. Adjust the [VOL +]/[VOL –] button so that the Ⓒ level of the waveform on the oscilloscope becomes 1.0 V ± 0.05 V. (Gamma adjustment)
10. Repeat the step 6 to 9 several times to become specified voltage.

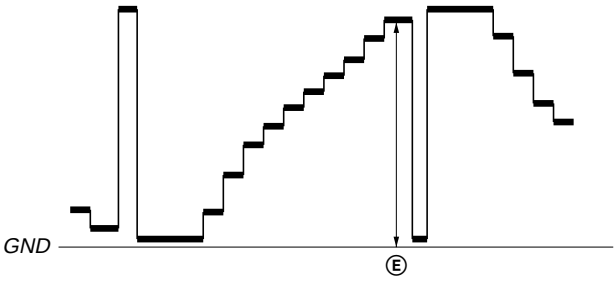


11. Connect an oscilloscope to the CN1010 ① pin and U7 on the LCD board.
12. Press the [SEEK +]/[SEEK –] button to select the “COM-Amp.”.
13. Adjust the [VOL +]/[VOL –] button so that the Ⓓ level of the waveform on the oscilloscope becomes 5.0 V ± 0.1 V. (VCOM adjustment)



14. Insert the DVD test disc and play the track No. 5.
    DVD test disc:
    HLX-504 (Part No.: J-6090-088-A) (single layer) (NTSC)
    HLX-505 (Part No.: J-6090-089-A) (dual layer) (NTSC)
    HLX-506 (Part No.: J-6090-077-A) (single layer) (PAL)
    HLX-507 (Part No.: J-6090-078-A) (dual layer) (PAL)
15. Connect an oscilloscope to the IC1033 pin ⑫ and U7 on the LCD board.
16. Press the [SEEK +]/[SEEK –] button to select the “Cont-RGB1”.

17. Adjust the [VOL +]/[VOL –] button so that the Ⓔ level of the waveform on the oscilloscope becomes 3.4 V ± 0.1 V. (DVD adjustment)
18. Press the [OFF] button to write the adjustment value and release the test mode.



Connection Location: LCD board

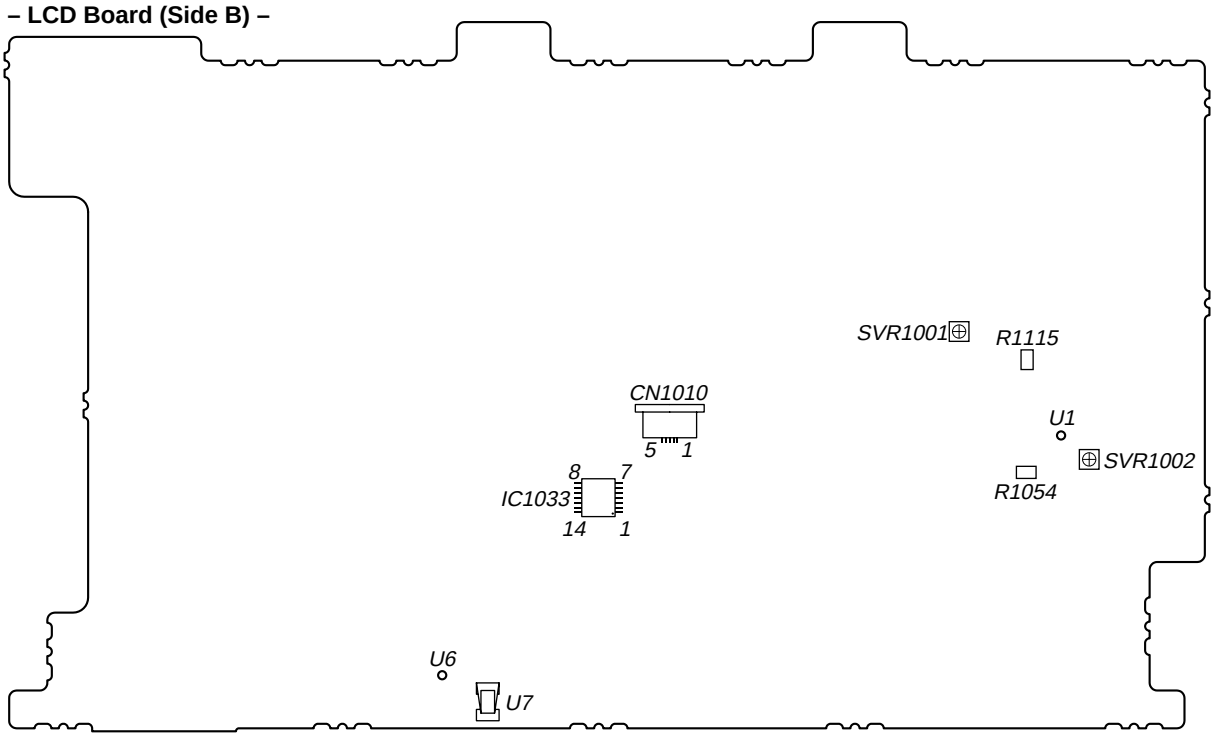
FLICKER ADJUSTMENT

Procedure:

1. Connect a TV SSG to the AUX3 jack on the MAIN board.
2. Input 10 steps signal (chroma off, NTSC composite video) from AUX3 jack on the MAIN board.
3. Set the test mode and press the [SEEK +]/[SEEK –] button to select the "Flicker-NTSC". (Afterwards, hold the state for 30 minutes or more)
4. Give a shock to the set, adjust the [VOL +]/[VOL –] button so that the flicker becomes minimum in the sight.
5. Input 10 steps signal (chroma off, PAL composite video) from AUX3 jack on the MAIN board.
6. Set the test mode and press the [SEEK +]/[SEEK –] button to select the "Flicker-PAL".
7. Give a shock to the set, adjust the [VOL +]/[VOL –] button so that the flicker becomes minimum in the sight.
8. Press the [OFF] button to write the adjustment value and release the test mode.

Adjustment and Connection Location:

– LCD Board (Side B) –



SECTION 5
EXPLODED VIEWS

NOTE:

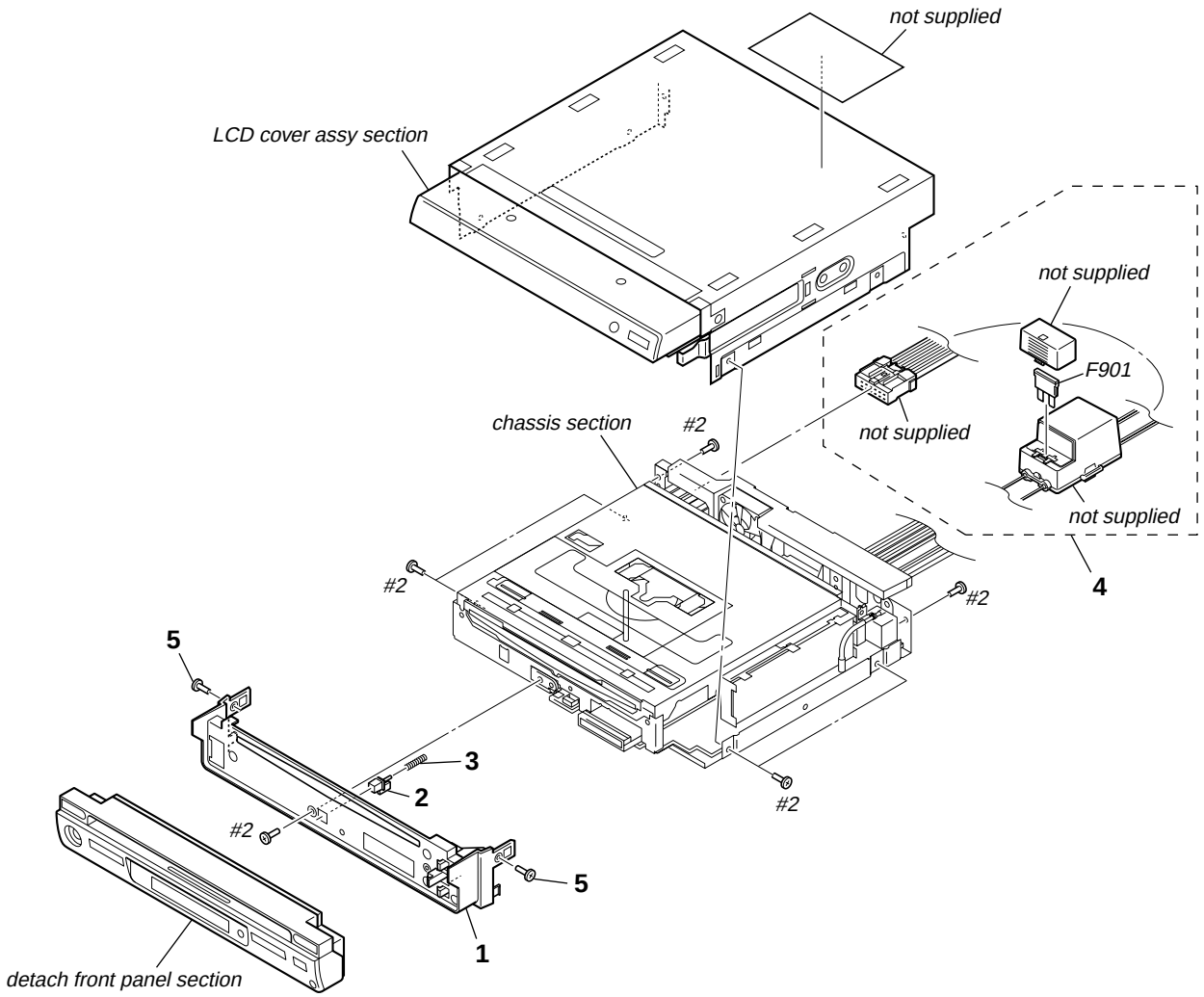
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Abbreviation
  AUS : Australian model CND : Canadian model
  CH : Chinese model RU : Russian model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

原理图和零件清单中标有⚠记号的零部件、或带有⚠记号的虚线所圈示的零部件，对于维系安全至关重要。因此只能以指定号码的零部件来更换。

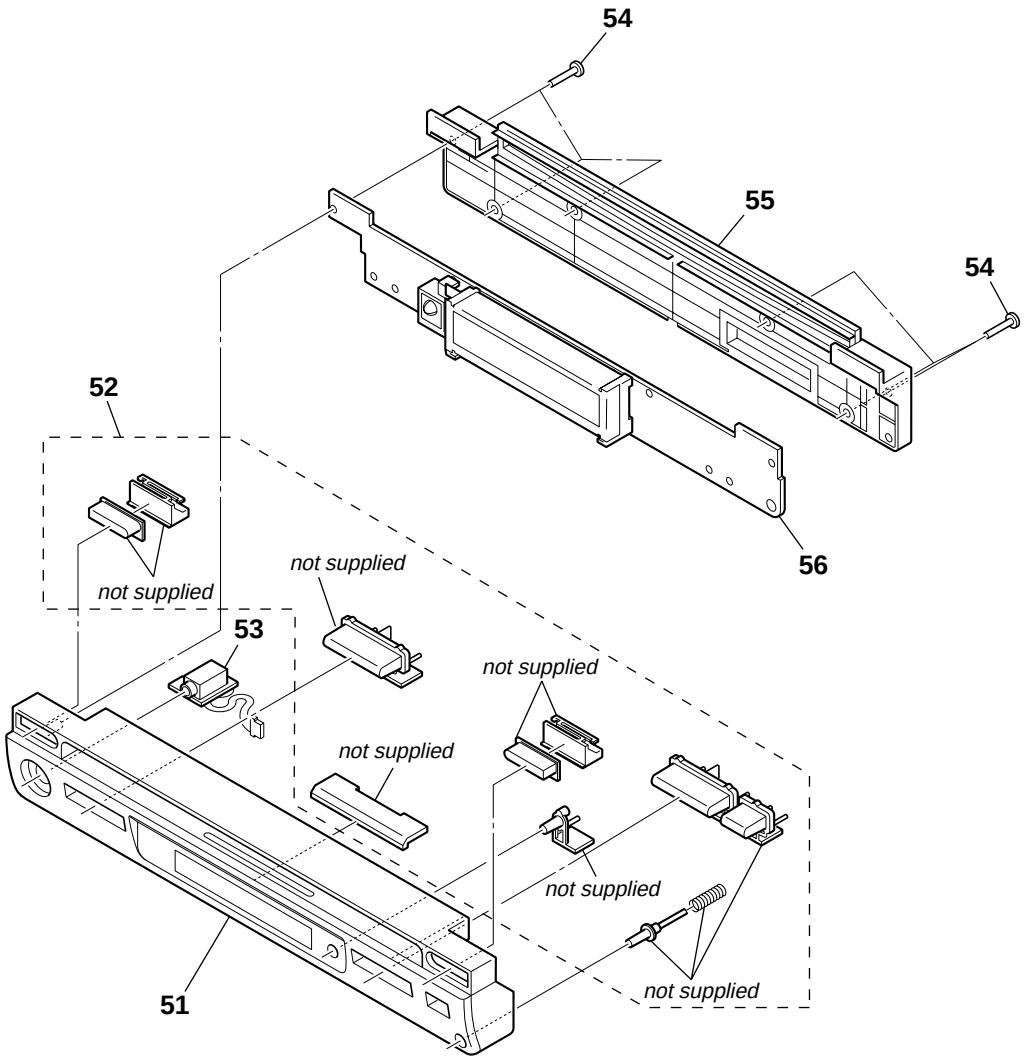
5-1. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
1	9-885-109-19	PANEL ASSY, FRONT	
2	9-885-085-39	SLIDE, SENSOR	
3	9-885-085-40	COMP SPRING, SLIDE	
4	9-885-084-73	CORD (POWER) (US, CND, E, AUS, CH)	
4	9-885-086-73	CORD (POWER) (AEP, RU)	

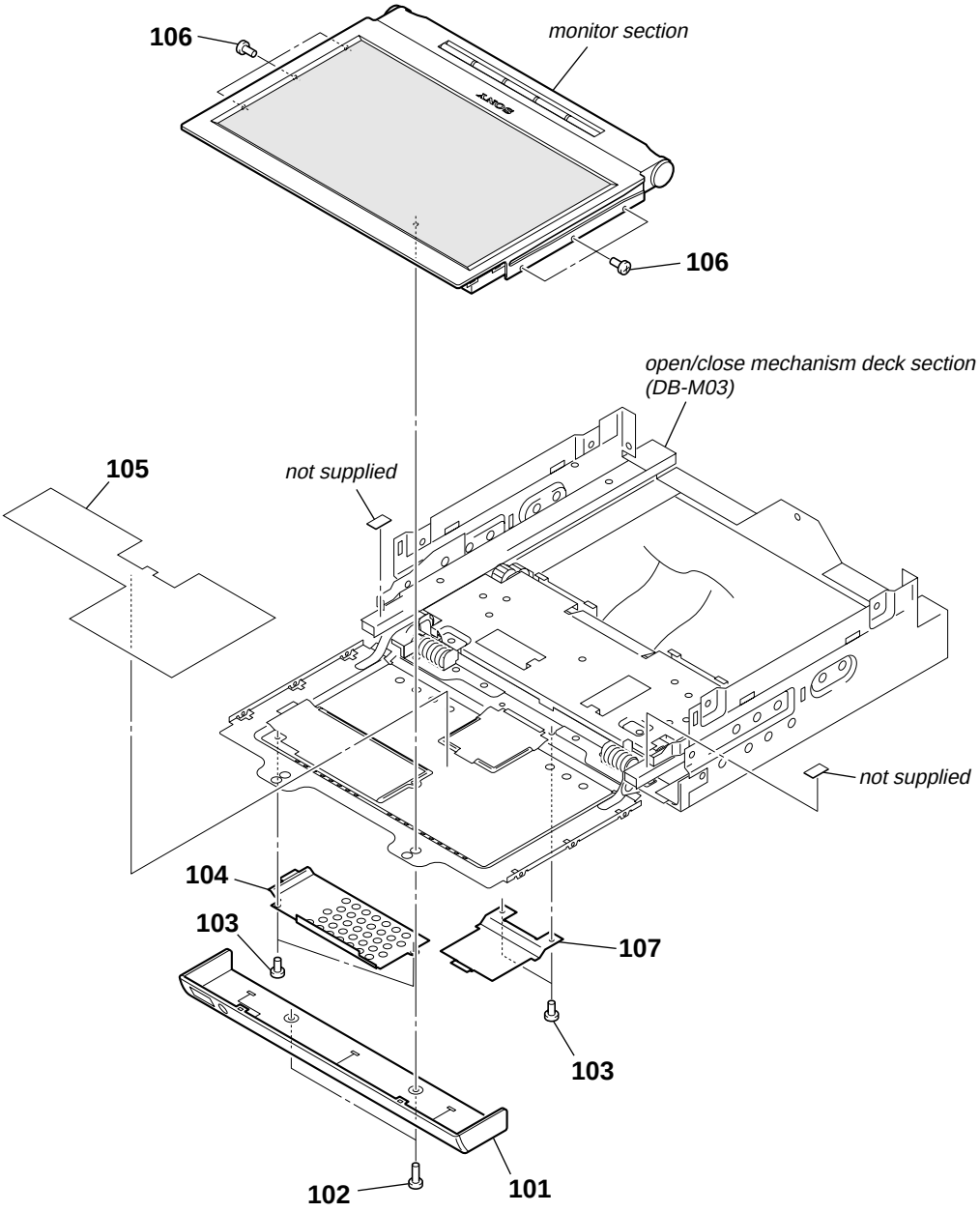
Ref. No.	Part No.	Description	Remark
5	9-885-084-87	SPECIAL SCREW	
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) (10A/32V)	
#2	7-685-791-09	SCREW +PTT 2.6X5 (S)	

5-2. DETACH FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	9-885-084-72	PANEL ASSY, DETACH F (EXCEPT US)	
51	9-885-084-98	PANEL ASSY, DETACH F (US)	
52	9-885-109-20	BUTTON ASSY, DETACH (C1)	
53	9-885-087-23	JACK BOARD, COMPLETE	
54	9-885-085-09	SCR S-TPG PAN PCS 1.7X8	
55	9-885-085-08	PANEL, DETACH R	
56	9-885-109-26	DISPLAY BOARD, COMPLETE	

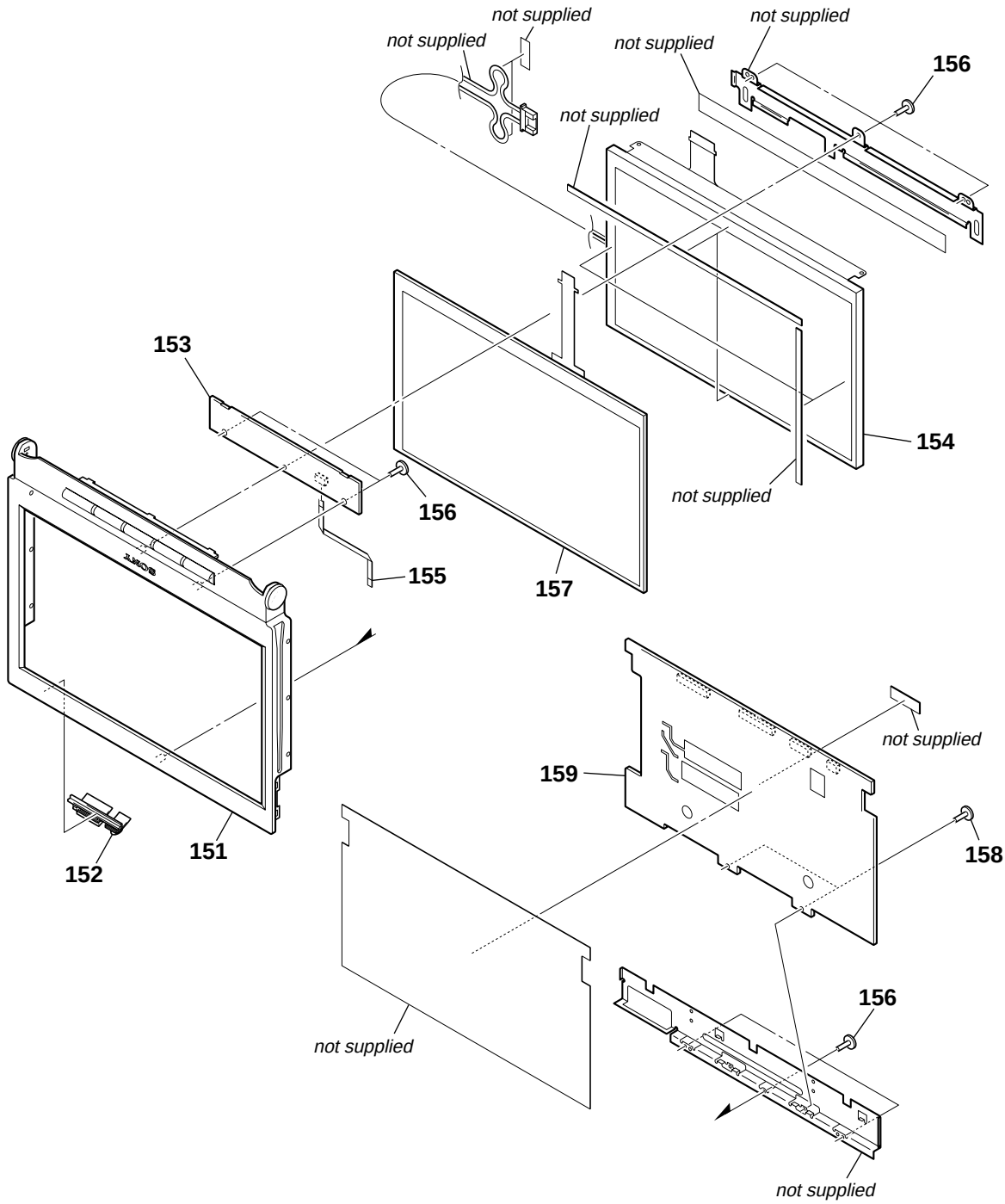
5-3. LCD COVER ASSY SECTION



Note: Be sure to refer to the Service Note “HOW TO PULL MONITOR BLOCK IN CASE ELECTRICITY DOES NOT CIRCULATE” (page 6) when pulling out the monitor block.

Ref. No.	Part No.	Description	Remark
101	9-885-084-80	COVER ASSY, LCD	
102	9-885-084-88	SPECIAL SCREW	
103	9-885-084-89	SPECIAL SCREW	
104	9-885-084-85	COVER, SOCKET	
105	9-885-084-95	INSULATOR, IB-2	
106	9-885-084-86	SPECIAL SCREW	
107	9-885-084-84	GUIDE, FPC	

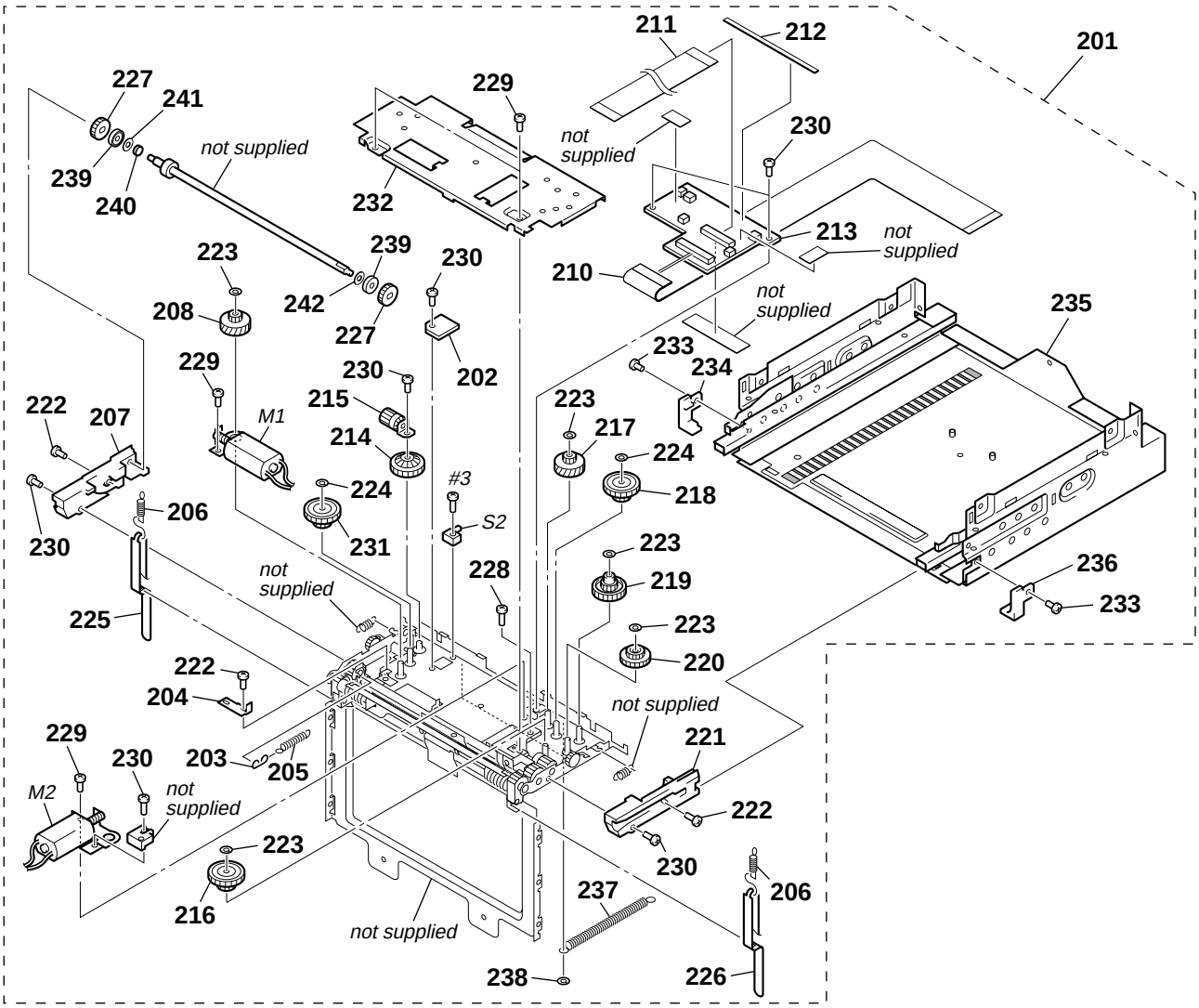
5-4. MONITOR SECTION



Ref. No.	Part No.	Description	Remark
151	9-885-109-23	PANEL ASSY, LCD (C1)	
152	9-885-109-24	BUTTON, OPEN (C1)	
153	9-885-109-27	KEY BOARD, COMPLETE	
154	9-885-109-21	LCD (C1)	
155	9-885-085-47	FFC, 5P 66mm	

Ref. No.	Part No.	Description	Remark
156	9-885-084-91	SPECIAL SCREW	
157	9-885-085-43	TOUCH PANEL	
158	9-885-084-86	SPECIAL SCREW	
159	9-885-109-25	LCD BOARD, COMPLETE	

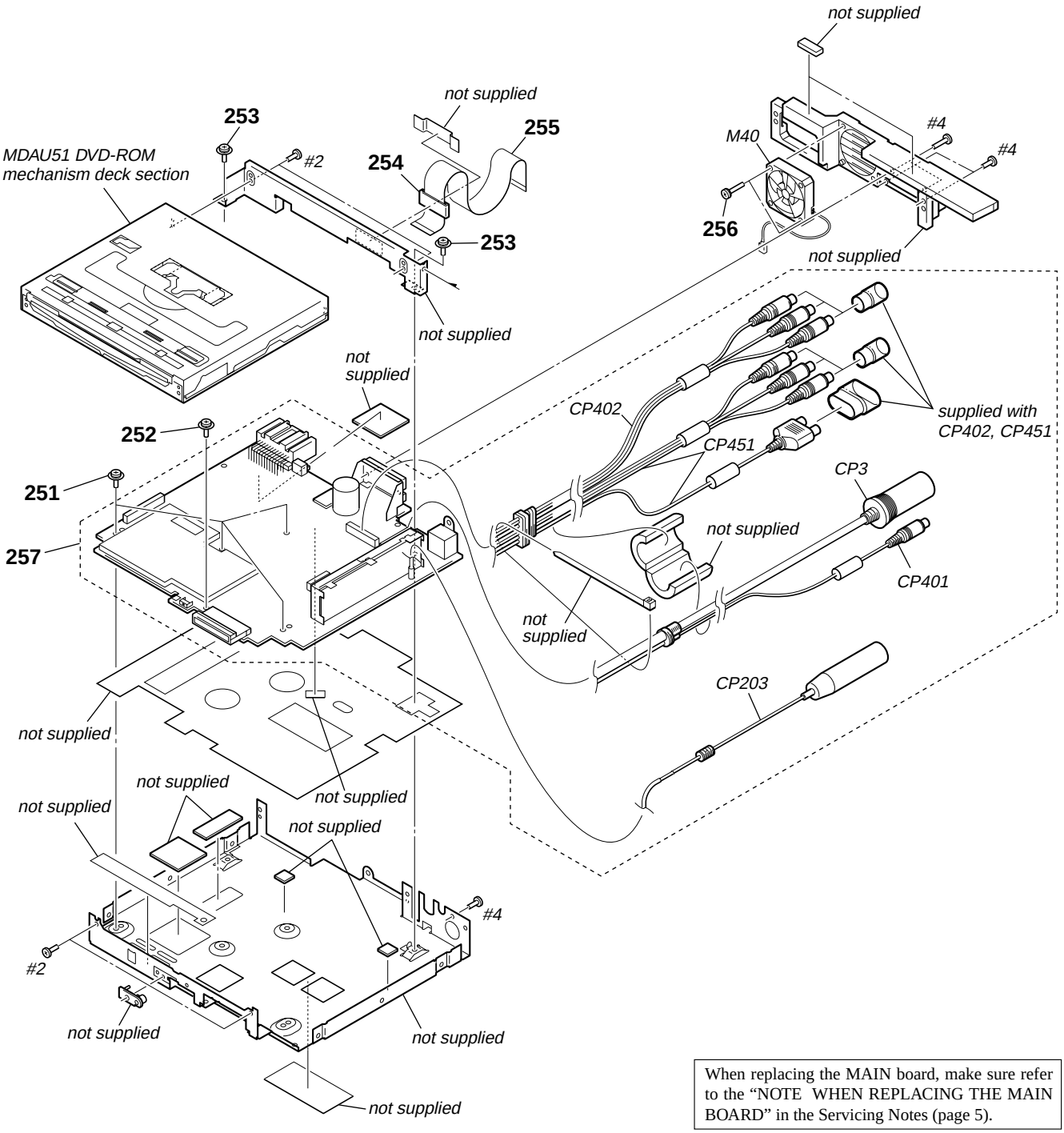
5-5. OPEN/CLOSE MECHANISM DECK SECTION (DB-M03)



Ref. No.	Part No.	Description	Remark
201	A-1086-575-D	OPEN/CLOSE MECHANISM DECK (DB-M03)	
202	A-1086-054-A	SW BOARD, COMPLETE	
203	2-548-681-01	JOINT (SPRING)	
204	2-580-886-01	BRACKET (R THRUST)	
205	2-025-223-01	SPRING (MONITOR), TENSION	
206	2-342-147-01	SPRING (CVR), TENSION	
207	2-025-200-13	SLIDER (L)	
208	2-587-463-01	GEAR (WHEEL S)	
210	1-865-109-12	FLEXIBLE (53P) BOARD	
211	1-865-108-12	FLEXIBLE (34P) BOARD	
212	2-055-724-01	SHEET (PWB)	
213	A-1086-060-B	SLIDER BOARD, COMPLETE	
214	2-025-192-02	GEAR (5)	
215	A-1082-511-A	GEAR (6) ASSY	
216	2-025-191-03	GEAR (4)	
217	2-025-187-01	GEAR (WORM WHEEL)	
218	2-025-188-01	GEAR (1)	
219	2-025-189-03	GEAR (2)	
220	2-025-190-03	GEAR (3)	
221	2-025-201-13	SLIDER (R)	
222	2-134-636-31	SCREW (M1.7X2.5)	
223	2-514-403-01	WASHER (GEAR), STOPPER	
224	2-514-404-01	WASHER (GEAR 1), STOPPER	

Ref. No.	Part No.	Description	Remark
225	2-342-149-01	COVER (R)	
226	2-342-148-01	COVER (L)	
227	2-025-198-04	GEAR (DS2)	
228	3-948-339-61	TAPPING	
229	3-719-696-21	SCREW (M2), SPECIAL HEAD	
230	2-626-869-01	SCREW (M2X3), SERRATION	
231	2-587-464-02	GEAR (1 S)	
232	2-025-170-02	BRACKET (SLIDER)	
233	2-022-855-01	SCREW M2 EG	
234	2-025-162-03	STOPPER (R)	
235	X-2059-718-2	CHASSIS (MAIN) ASSY	
236	2-025-161-03	STOPPER (L)	
237	2-548-178-01	SPRING (GT), TENSION	
238	2-588-123-01	WASHER (GT), STOPPER	
239	2-560-750-01	ROLLER (DS2)	
240	2-560-855-01	SPACER (DS)	
241	2-580-523-01	WASHER (DS-R)	
242	2-580-524-01	WASHER (DS-L), STOPPER	
M1	A-1105-379-A	BRACKET (MOTOR S) ASSY (SLIDE)	
M2	A-1082-512-A	BRACKET (MOTOR) ASSY (ANGLE)	
S2	1-570-771-21	SWITCH (CLOSE)	
#3	7-627-853-87	SCREW (M2X8)	

5-6. CHASSIS SECTION

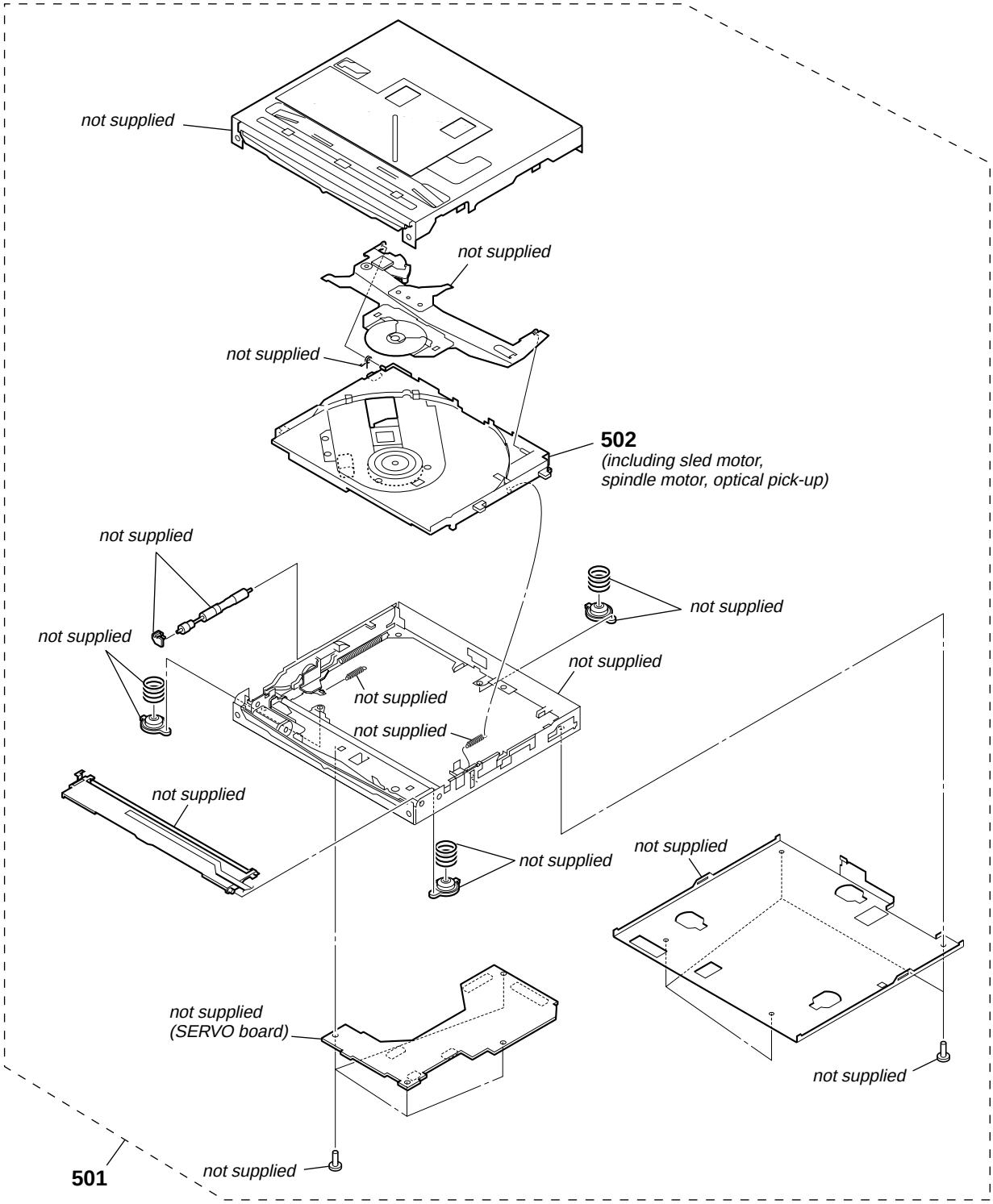


When replacing the MAIN board, make sure refer to the "NOTE WHEN REPLACING THE MAIN BOARD" in the Servicing Notes (page 5).

Ref. No.	Part No.	Description	Remark
251	9-885-085-33	SCR S-TPG PAN +SWW 2.6X6	
252	9-885-085-35	SCR S-TPG PAN +SWW 2.6X5	
253	9-885-085-34	SCR S-TPG PAN +SWW 2.6X7	
254	9-885-085-46	CORE	
255	9-885-085-45	FFC, 35P 90mm	
256	9-885-085-32	SCR PAN +SW 3X14	
257	9-885-109-22	MAIN BOARD, COMPLETE	
CP3	9-885-085-54	CORD, RCA (CONTROL IN) (Including CP401)	

Ref. No.	Part No.	Description	Remark
CP203	9-885-085-53	ANT CORD (ANTENNA IN)	
CP401	9-885-085-54	CORD, RCA (AUX3 (CAMERA)) (Including CP3)	
CP402	9-885-085-55	CORD, RCA (AUX2 (VIDEO)) (Including CP451)	
CP451	9-885-085-55	CORD, RCA (REAR MONITOR OUT, SUB OUT (MONO)) (Including CP402)	
M40	9-885-085-44	FAN, MOTOR	
#2	7-685-791-09	SCREW +PTT 2.6X5 (S)	
#4	7-685-794-09	SCREW +PTT 2.6X10 (S)	

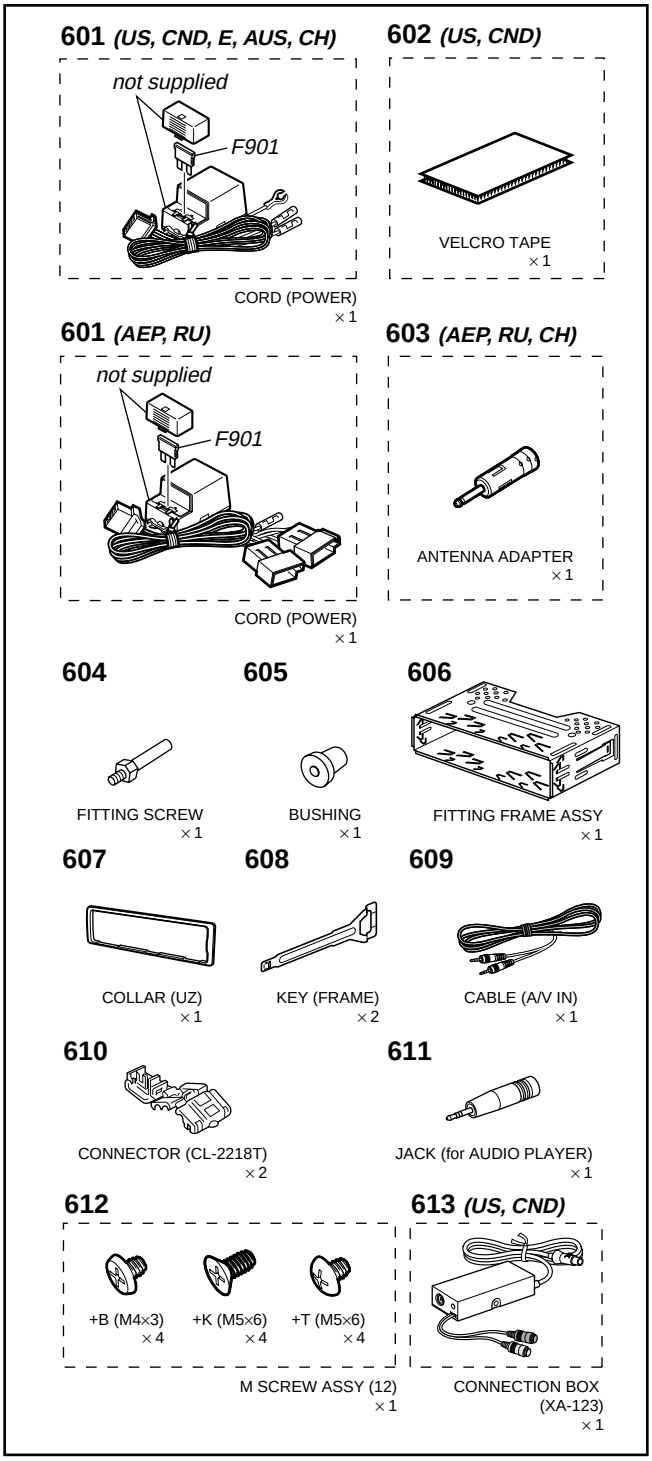
5-7. MDAU51 DVD-ROM MECHANISM DECK SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
501	9-885-085-42	DVD-ROM MECHAMISM, MDAU51		⚠502	9-885-087-24	CHASSIS ASSY, DVD (including HPD-60)	

5-8. ACCESSORIES

Ref. No.	Part No.	Description	Remark
		ACCESSORIES	
		**********	
	1-479-296-11	REMOTE COMMANDER (RM-X706) (including battery case lid)	
	2-548-730-01	LID, BATTERY CASE (for RM-X706)	
	2-597-469-15	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH) (US, CND)	
	2-597-469-24	MANUAL, INSTRUCTION (ENGLISH, SPANISH, TRADITIONAL CHINESE) (E, AUS)	
	2-597-469-34	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (AEP, RU)	
	2-597-469-44	MANUAL, INSTRUCTION (ENGLISH, SIMPLIFIED CHINESE) (CH)	
	2-597-872-14	MANUAL, INSTRUCTION, INSTALL (ENGLISH, FRENCH, SPANISH) (US, CND)	
	2-597-872-24	MANUAL, INSTRUCTION, INSTALL (ENGLISH, SPANISH, TRADITIONAL CHINESE) (E, AUS)	
	2-597-872-36	MANUAL, INSTRUCTION, INSTALL (ENGLISH, RUSSIAN) (AEP, RU)	
	2-597-872-44	MANUAL, INSTRUCTION, INSTALL (ENGLISH, SIMPLIFIED CHINESE) (CH)	
	X-2055-396-1	CASE (PANEL) ASSY (for DETACH FRONT PANEL)	
**********			
		PARTS FOR INSTALLATION AND CONNECTIONS	
		**********	
601	9-885-084-73	CORD (POWER) (US, CND, E, AUS, CH)	
601	9-885-086-73	CORD (POWER) (AEP, RU)	
602	9-885-016-07	VELCRO TAPE (for XA-123) (US, CND)	
603	1-465-459-21	ADAPTER, ANTENNA (AEP, RU, CH)	
604	3-386-828-01	SCREW, FITTING	
605	3-349-410-11	BUSHING	
606	X-3382-647-1	FRAME ASSY, FITTING	
607	2-178-235-01	COLLAR (UZ)	
608	3-246-011-01	KEY (FRAME)	
609	9-885-084-74	CABLE (A/V IN)	
610	1-562-593-11	CONNECTOR (CL-2218T)	
611	9-885-084-75	JACK (for AUDIO PLAYER)	
612	X-2025-413-1	M SCREW ASSY (12)	
613	9-885-085-67	CONNECTION BOX (XA-123) (US, CND)	
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) (10A/32V)	



REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2006.10	New